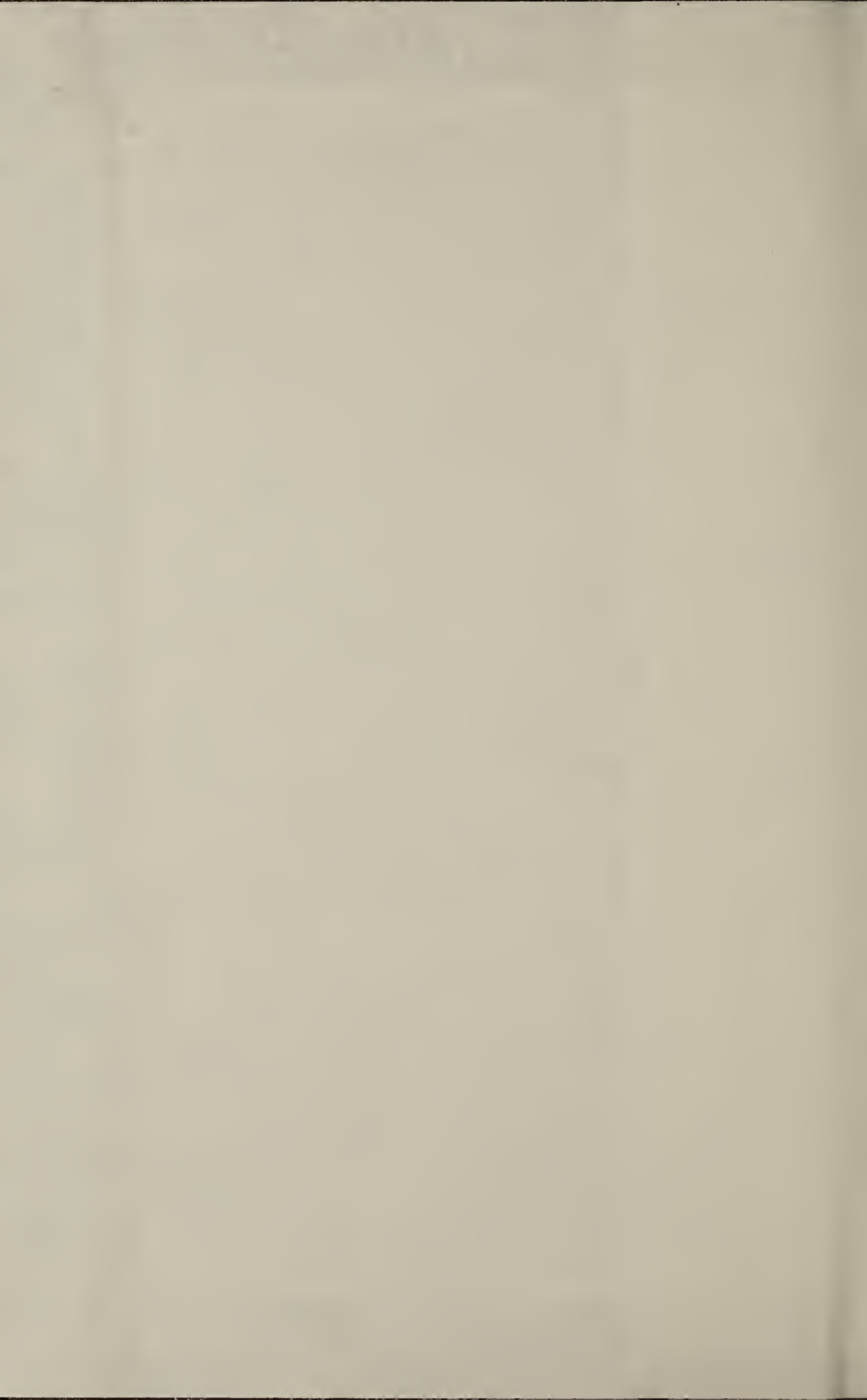




GEN





3 1833 01796 8022

VOL. XXI, Nos. 1-4

OCTOBER, 1935-JULY, 1936

Smith College Studies in History

GENEALOGY
974.402
N816GY

JOHN C. HILDT
WILLIAM DODGE GRAY
HAROLD UNDERWOOD FAULKNER

Editors

A CHRONICLE OF INDUSTRY ON THE MILL RIVER

by

AGNES HANNAY

NORTHAMPTON, MASS.

Published Quarterly by the Department of History of Smith College
Entered as second-class matter December 14, 1915, at the postoffice at Northampton,
Mass., under the act of August 24, 1912

SMITH COLLEGE STUDIES IN HISTORY

JOHN C. HILDT

WILLIAM DODGE GRAY

HAROLD UNDERWOOD FAULKNER

EDITORS

THE SMITH COLLEGE STUDIES IN HISTORY is published quarterly, in October, January, April and July, by the Department of History of Smith College. The subscription price is seventy-five cents for single numbers, two dollars for the year. Subscriptions and requests for exchanges should be addressed to SMITH COLLEGE LIBRARY, Northampton, Mass.

THE SMITH COLLEGE STUDIES IN HISTORY aims primarily to afford a medium for the publication of studies in History by investigators who have some relation to the College, either as faculty, alumnae, students or friends. It aims also to publish from time to time brief notes on the field of History which may be of special interest to alumnae of Smith College and to others interested in the higher education of women. Contributions of studies or notes which promise to further either of these aims will be welcomed, and should be addressed to Professor Harold U. Faulkner, Northampton, Mass.

SMITH COLLEGE STUDIES IN HISTORY

VOLUME I (1915-16)

- No. 1. AN INTRODUCTION OF THE HISTORY OF CONNECTICUT AS A
MANUFACTURING STATE.....*Grace Pierpont Fuller*
Nos. 2-3. THE OPERATION OF THE FREEDMEN'S BUREAU IN SOUTH
CAROLINA.....*Laura Josephine Webster*
No. 4. WOMEN'S SUFFRAGE IN NEW JERSEY, 1790-1807.....*E. R. Turner*
THE CHEROKEE NEGOTIATIONS OF 1822-23.....*Annie Heloise Abel*

VOLUME II (1916-17)

- No. 1. THE HOHENZOLLERN HOUSEHOLD AND ADMINISTRATION IN THE
SIXTEENTH CENTURY.....*Sidney Bradshaw Fay*
No. 2. CORRESPONDENCE OF GEORGE BANCROFT AND JARED SPARKS
1823-1832.....*Edited by John Spencer Bassett*
No. 3. THE DEVELOPMENT OF THE POWERS OF THE STATE EXECUTIVE IN
NEW YORK.....*Margaret C. Alexander*
No. 4. TRADE OF THE DELAWARE DISTRICT BEFORE THE
REVOLUTION.....*Mary Alice Hanna*

VOLUME III (1917-18)

- No. 1. JOSEPH HAWLEY'S CRITICISM OF THE CONSTITUTION
OF MASSACHUSETTS.....*Mary Catherine Clune*
No. 2. FINANCES OF EDWARD VI AND MARY.....*Frederick Charles Dietz*
No. 3. THE MINISTRY OF STEPHEN OF PERCHE DURING THE
MINORITY OF WILLIAM II OF SICILY.....*John C. Hildt*
No. 4. NORTHERN OPINION OF APPROACHING SECESSION.....*L. T. Lowrey*

VOLUME IV (1918-19)

- No. 1. THE PROBLEM OF ADMINISTRATIVE AREAS.....*Harold J. Laski*
No. 2. IN THE TIME OF SIR JOHN ELIOT.....*M. B. Fuller*
No. 3. A STUDY OF THE LIFE OF HADRIAN PRIOR TO HIS
ACCESSION.....*William Dodge Gray*
No. 4. THE HAYES-CONKLING CONTROVERSY, 1877-1879.....*Venila L. Shores*

VOLUME V (1919-20)

- Nos. 1-2. PUBLIC OPINION IN PHILADELPHIA, 1789-1801.....*Margaret Woodbury*
No. 3. DEVELOPMENT OF HISTORY AND GOVERNMENT IN SMITH
COLLEGE, 1875-1920, WITH A LIST OF PUBLICATIONS
OF THE FACULTY AND ALUMNAE.....*Mary Breeze Fuller*
No. 4. INFLUENCES TOWARD RADICALISM IN CONNECTICUT
1754-1775.....*Edith Anna Bailey*

VOLUME VI (1920-21)

- Nos. 1, 2. LE DERNIER SEJOUR DE J.-J. ROUSSEAU A PARIS
1770-1778.....*Elizabeth A. Foster*
No. 3. LETTERS OF ANN GILLAM STORROW TO JARED
SPARKS.....*Francis Bradshaw Blanshard*
No. 4. THE WESTOVER JOURNAL OF JOHN A.
SELDEN.....*Edited by John Spencer Bassett*

(Continued on inside of back cover)

STUDY III
IN THE COUNCIL OF INDUSTRIAL
STUDIES SERIES



VOL. XXI, Nos. 1-4

OCTOBER, 1935-JULY, 1936

Smith College Studies in History

JOHN C. HILDT
WILLIAM DODGE GRAY
HAROLD UNDERWOOD FAULKNER

Editors

A CHRONICLE OF INDUSTRY ON THE MILL RIVER

by

AGNES HANNAY

NORTHAMPTON, MASS.

Published Quarterly by the Department of History of Smith College
Entered as second-class matter December 14, 1915, at the postoffice at Northampton,
Mass., under the act of August 24, 1912



THE COUNCIL OF INDUSTRIAL STUDIES

The Council of Industrial Studies of Smith College is engaged in studying the economic development of the Connecticut Valley region of New England. When the Council was established in 1932 both historical and contemporary projects were envisaged, but major emphasis was to be placed upon locating and utilizing the rich store of primary documentary materials to be found in the region.

Each Council study is planned as a unit complete in itself. It is a feature of our plan, however, that each is also a part of a co-ordinated series, and it is hoped that eventually out of the series may be built a regional account, the result of the painstaking research that has gone into the separate investigations.

The Council is made up of a committee of five professors from the Departments of Economics and History of the College. Professor Esther Lowenthal of the Economics Department, chairman, Professors Harold U. Faulkner and Merle Curti of the History Department, and Professors William A. Orton and Dorothy W. Douglas of the Economics Department, are members of the Council. The staff comprises a part-time director of research and two full-time research fellows.

The present study, *A Chronicle of Industry on the Mill River*, is the third in the series. Two other studies have been published to date, *Economic History of a Factory Town, A Study of Chicopee, Massachusetts*, by Vera Shlakman, and *Shutdowns in the Connecticut Valley*, a study of worker displacement in the small industrial community. Four studies are now in progress dealing with the rise of railroads in the region, the metals industry before 1860, colonial merchants and trade, 1760-1830, and agricultural changes as they relate to the region's general economic development.

KATHARINE DU PRE LUMPKIN,
Director of Research, Council of Industrial Studies.

ACKNOWLEDGMENTS

The preparation of this study would have been impossible without the assistance of many Northampton and Williamsburg residents who placed at my disposal not only valuable documents in their possession, but their own recollections of local industrial history. The late Mr. Harold Lee, who generously gave me access to actual Nonotuck and Corticelli Silk Company records, Mr. Homer Bliss, former Mayor of Northampton, and Mr. Adolph Friedrich of Florence were especially helpful in connection with the history of the Corticelli Silk Company. I wish to thank Mrs. Thomas M. Shepherd for her interest in introducing me to many persons who possessed useful information. Mr. Joseph Harrison was most kind in allowing me full use of the Forbes Library. Mr. Oscar Edwards, Mr. R. B. Hills, Mr. George Miller, Mr. E. E. Wood, Mrs. Joseph Collins, the late Mr. Champion B. Swift, Mr. Maurice Crooks, the late Mrs. I. S. Moseley, and Mr. William Thayer gave me much specific information concerning the industries with which they were connected. I am grateful to the secretary of the Florence Casket Company who opened its books for my inspection. Many other persons talked with me and supplied scattered documents relating to early industrial interests.

The study has been read and criticized by Professors Esther Lowenthal and Harold U. Faulkner of Smith College, and I wish to thank them for their suggestions. Dr. Katharine Lumpkin, Director of Research of the Council of Industrial Studies, not only gave advice and criticism at every turn, but reorganized much of the material into its present form.

A. H.

CONTENTS

	PAGE
ACKNOWLEDGMENTS	6
INTRODUCTION	9
I. EARLY INDUSTRY ON THE MILL RIVER.....	12
II. TWO COLONIAL BUSINESS MEN.....	25
III. WOOLEN MANUFACTURE.....	31
IV. GENERAL INDUSTRIAL DEVELOPMENT, 1815-1845.....	43
V. THE ESTABLISHMENT OF THE SILK INDUSTRY.....	58
VI. LOCAL ENTERPRISE IN THE EXPANSION OF INDUSTRY..	70
VII. LABOR UNDER LOCAL ENTERPRISE.....	93
VIII. THE REGION IN RECENT DECADES.....	106
IX. THE DECLINE OF SILK.....	121
APPENDIX	127
BIBLIOGRAPHY.....	132
INDEX	139



THE MILL RIVER REGION IN HAMPSHIRE COUNTY,
MASSACHUSETTS

(Scale: 1 inch=2.5 miles)

INTRODUCTION

As a rule, we see the history of manufactures in terms of its major trends—the greater technological inventions and innovations, large accumulations of capital, notable entrepreneurs, leading industries and their organization, historic movements among principal aggregations of labor. The contribution of small enterprise and the small industrial center to the growth of manufactures tends to be obscured. Yet there are small regions whose rôle has been more than minor. They are not merely the larger centers in miniature, but have played a part of their own.

The Mill River region seems to represent a type of small-scale development whose story deserves to be told. The total volume of its industrial output, at its highest point reached just after the World War, did not exceed 16 million dollars in value, ranking it thirty-eighth among Massachusetts manufacturing communities, and some 4,000 wage earners were the most ever to be employed. Yet within the compass of its history it had a remarkable record of nationally known products.

Shepherd's Northampton Woolen Manufacturing Company was one of the country's prominent woolen concerns in the first quarter of the nineteenth century.¹ And Shepherd's attempts to improve the domestic wool supply by the introduction of merino and saxony breeds of sheep were noteworthy in early American history. The region also played an interesting part in developing button manufacture in this country. The *Encyclopedia Britannica*, in its short article on button-making, finds it necessary to mention that the mechanical manufacture of covered buttons in the United States was begun in the factory of Samuel Williston and the Hayden brothers in Haydenville in the early 1830's; and it also notes that buttons made of vegetable ivory, a material brought from tropical countries, and destined to become important as a raw material, were first made in Leeds by A. W. Critchlow. The successful attempt of Samuel Whitmarsh to make Northamp-

¹ Cole, Arthur H., *The American Wool Manufacture*, Cambridge, Mass., 1926, Vol. I, pp. 195-196.

ton a center for the culture of silk figures prominently in the story of the silk craze of the 1830's, and the Northampton Silk Company, established through Whitmarsh's efforts, was regarded as one of the leading concerns at the time. It tried to carry on both the production of silk and its manufacture. The Nonotuck Silk Company, established about the middle of the century, in time sent out products under the trade name "Corticelli" to all the leading markets. In the latter part of the nineteenth century the equally important Belding Brothers silk firm opened a branch plant in the region, and one of the well-known brands of silk hose is produced by the McCallum Hosiery Company of Northampton. From these and smaller silk firms came the region's reputation as a silk center.

The manufacture of cutlery began early, the region's plants selling to leading silver-smiths in New York and elsewhere. In late years two companies of national reputation, the Rogers Silver Company (later consolidated with Oneida, Ltd.), and the International Silver Company, operated branch plants in Northampton. Characteristically for New England, miscellaneous products of light industry were always prominent. Florence is the home of the Pro-phy-lac-tic Brush Company, which from a small shop in the 1870's became a corporation of several million dollars capital. Of much less prominence, but with exceedingly wide markets, was the basket works that flourished for half a century; and there was a time when the Haydenville Brass Company, maker of plumber's supplies, was rated as one of the leading firms of this kind.

Few of the firms manufacturing these products were of outside origin. This fact emerges strikingly as the history of the region is studied. Here are to be found, throughout the nineteenth century, not companies established by absentee capital and managed by agents sent in from large industrial centers,² but locally initiated industry, guided and financed for many years

²Chicopee, Massachusetts, was a factory town developed by absentee capital. (Cf. Shlakman, Vera, *Economic History of a Factory Town, A Study of Chicopee, Massachusetts*, Smith College Studies in History, Vol. XX. Northampton, Mass. Study II of the Council of Industrial Studies Series. 1936).

by men who had always lived in the region or who had come from nearby New England communities and had made this spot their permanent home. Hence the region affords us an unusually good opportunity to observe the rôle and contribution of local enterprise in the industrial development of a small New England center. Our chronicle of the growth of manufactures on the Mill River takes this as its central theme.

CHAPTER I

EARLY INDUSTRY ON THE MILL RIVER

In the spring of 1654 a small band of pioneers from Hartford and Wethersfield in Connecticut and from Springfield in Massachusetts established a settlement at a place called Nonotuck in what is now Hampshire County of Western Massachusetts. The site for Northampton, as the settlement was named, where a small, but swift stream flowed into the Connecticut River, was admirably chosen. It is said that the settlers purchased the land from thirty-nine Indian chiefs paying one hundred fathoms of wampum, ten coats, and a few trinkets. The Indians reserved the right to continue to raise crops, to hunt and to fish in the vicinity. The land extended from what is now South Hadley Falls to Hatfield, and nine miles into the woods westward from the Connecticut River. As was usual in such settlements, each settler who was head of a family was allotted a certain number of acres, in this case four, within the village as a home site, and a large piece of meadow land. The remaining land on which stock might graze and from which firewood might be cut, was common.¹

Undoubtedly the rich meadows along the banks of the Connecticut were the principal attraction to the first settlers. But, as they were soon to learn, the water power of the small tributary stream was also important. Two sets of falls were nearby, for many years known as the Upper and Lower Falls, and the mills they supported, the Upper and Lower Mills.²

THE PIONEER COMMUNITY

The settlers lost little time in utilizing the water power. Before five years had elapsed a grist mill was operating. It was begun probably in 1658, as J. R. Trumbull, Northampton's schol-

¹ Johnson, Clifton, *Historic Hampshire in the Connecticut Valley* (Springfield, 1932), 7-9.

² One immediately above the present South Street Bridge, the other on Smith College property.

arly local historian concludes,³ for it was mentioned in 1659 in a petition to the General Court concerning taxation and in a record of wages paid for work done on the mill. Undoubtedly it had been planned earlier, for in 1657 in the allotment of holdings in the "Manham Meadow," the stream, like many another in pioneer New England, was called Mill River—"And these to runn from the greate River (the Connecticut) to the Mill River."⁴ Whatever its date, a grist mill was the first which the settlement's water power operated. Pioneers must use their labor and ingenuity first to provide food. Grist mills save the hard slow household labor of pounding out grain and the community usually assists in their erection. Northampton furnished land and some part of the labor for the first mill and labor for another built in 1666.

In 1669 there is the record of a saw mill which did not begin operations till three years later. Here again the town assisted. To the owner was granted twenty acres, the "mill to goe rate free, in all the common Towne rates due from him, and his heirs soe long as he keepe the mill goeing for the Towne use."⁵ Other saw mills and grist mills were built from time to time to meet the subsistence needs of the settlers in the immediate vicinity.⁶

Presently craftsmen of various sorts began to establish themselves in the settlement. The community's first blacksmith was a man of "roving disposition," who seemed to do everything but ply his trade, being a dealer in furs, a speculator in real estate, and a tinker.⁷ In 1660 he sold his blacksmith tools to the town, which let them out "on termes" to Medad Pomeroy, a blacksmith who had arrived a few months before. In the same year came a cooper. To each of these two craftsmen the town gave sixteen acres of land in good locations, "on this Condition that they shall inhabit in this towne and possess it in their owne persons fowre yeares from the day of the date abovesaid, and doe the worke that belong to their trades, that is to say to supply the

³ Trumbull, J. R., *History of Northampton, Massachusetts* (Northampton, Mass., 1902), I, 95.

⁴ *Ibid.*, I, 54.

⁵ *Ibid.*, I, 221.

⁶ *Ibid.* See I, 544, and II, 79, 92.

⁷ *Ibid.*, I, 102-103.

Townes need of Smithery and Coopery ware.”⁸ In 1660 also came John Strong, the first tanner, soon a leading figure in the settlement. The town granted him a tan yard and by its vote “directed all hides to be taken to him to be tanned at his own price.” Strong’s son learned the tanner’s trade and carried on the business after his father.⁹ Land for a brick yard was granted prior to 1658. This first yard made bricks even for John Pynchon, a leading merchant of Springfield, for building his new house. A second yard was voted in 1684.¹⁰ By 1700 Northampton was sending tar and turpentine products down the Connecticut River to Hartford and thence to other points. One Northampton shipper is said to have sent out more than 500 barrels of turpentine between 1696 and 1700.¹¹ Cattle were fattened by farmers up and down the Connecticut Valley to be driven to Boston by drovers.¹²

Even mining was attempted. In 1678 lead was discovered by a hunter in the hills about six miles from Northampton.¹³ After much effort he induced two Boston business men to form a company, in which Northampton men for a short time participated. The mine was opened in 1680. Trumbull quotes an entry from the account books of John Pynchon, Springfield’s principal merchant, to show that he too investigated the lead mine. Pynchon owned lead mines elsewhere in Massachusetts and Connecticut. The mines near Northampton were abandoned after the death of the Boston owner, but during the eighteenth and nineteenth centuries a number of different companies took them over and operated them for short periods, always on a small scale.

The usual household manufacture developed in these early days. Mill River farmers, like those in other isolated New England settlements, made what they must and could themselves, and gave materials to craftsmen to make up for them, when their services could be had. It appears to have been customary for every farmer to raise at least one acre of flax. This was dressed and made ready for weaving at home.¹⁴ From the earliest years

⁸ *Ibid.*, I, 103.

¹⁰ *Ibid.*, I, 383.

¹² *Ibid.*, II, 79-80.

⁹ *Ibid.*, I, 115.

¹¹ *Ibid.*, I, 463.

¹³ *Ibid.*, I, 358 ff.

¹⁴ *Ibid.*, II, 10.

sheep were raised. At first the wool was woven as well as spun in the farm house, but weaving early became the work of craftsmen. We learn that home-made checkered shirts, the cloth woven of wool or flax, were a characteristic Connecticut Valley garment as late as the 1760's; a new arrival in Northampton remarked upon their prevalence in the meeting house on Sunday where they were worn by all but five or six men.¹⁵ This was a time when tailors and shoemakers often went from house to house in pursuit of their trades. Tradition has it that a woman tailor in Northampton for forty years made garments for most of the men of the town, employing very commonly three or four apprentices.¹⁶

Weavers were in demand. We have the record of "Richard Church of Hatfield, weaver," 1704; of "Manoa Bodman of Sunderland, weaver," in 1723,¹⁷ of Samuel Bodman of Hatfield, whose systematic accounts from 1717 to 1727 have come down to us.¹⁸ Samuel Bodman was a weaver of woolen cloth—blankets, "linse wolse" and "driegid." The two last are very durable fabrics, composed of wool variously combined with flax, in common use for outer clothing in the colonial period. Bodman also combed wool, and wove woolen cloth, using the material of his customers as the following entries show:

Dr. Ickabod Smith in the year 1717		
To comeing 6 lb. and 4 oz. of wool	. . .	0- 4-6
Dr. John Belding in the year 1718		
To weaving 51 yds. and ½ of linen	. . .	0-18-9
To weaving 8 yds. of Driegid		0- 6-0

This craftsman also plied the shoemaker's trade, as we learn from a charge against Sergeant Hubbard in 1717 of one shilling ten pence for "a pare of uper lethars for John's shoes." His records show another occupation: "To keeping your oxen one week," and "To keeping your horse eight weeks—0-0-8."

Bodman and his fellow craftsmen did not lack home-grown raw materials. Flocks of sheep were so numerous ten years

¹⁵ Trumbull, J. R., *op. cit.*, II, 10-11. ¹⁶ *Ibid.*

¹⁷ From original receipts loaned by a Northampton resident.

¹⁸ Account Books of Samuel Bodman of Hatfield, Weaver, 1717-1727. Owned by a Northampton resident.

after settlement in 1664 that the town employed a shepherd.¹⁹ In 1699, it was voted to set apart certain large tracts for sheep pastures.²⁰ When the General Court of Massachusetts offered a bounty on sheep in 1718 and 1719, many Northampton families received "bounty money for sheep," as the keeper of accounts, one Joseph Hawley, records in his books.²¹ In 1727 another large pasture was cleared and fenced, and within the next eight years the town voted that if

A Sufficient Number of persons Would Subscribe and Come under Engagement to have in this Town to the number of five Hundred Sheep by Some time next Spring, and Effect it that they would fence in Mount Tom for Sheep to be kept upon.²²

Hemp and flax as well as wool were locally grown.²³

WOOLEN MANUFACTURE

A step in specialization of production came when the fulling mills for woolen cloth were established at the opening of the eighteenth century. Fulling was the first operation in cloth making to be carried on in mills deriving power from the Mill River. The woven fabric was felted to improve its texture by making it thicker and closer and heavier. The fabric gains in substance what it loses in length and width. In the household this had to be done laboriously by immersing the cloth in warm soapsuds, then beating or treading it on a flat surface. A grant to build a fulling mill was made to Deacon Medad Pomeroy in 1682, though apparently he gave it up. Other grants came in succeeding years.²⁴ It was John Combs in 1702 who finally built a mill on the outskirts of the town in the vicinity of what is now the Oneida, Ltd., plant. The town safeguarded its interest in this venture by placing a proviso in the grant that "When said mill is rotten and he doth not Repair it so as make it Servisable so as to do the worke of the Towne which is brought to him the place to return to the Towne Againe."²⁵

¹⁹ Trumbull, J. R., *op. cit.*, I, 186.

²⁰ *Ibid.*, 455.

²¹ *Ibid.*, 559.

²² *Ibid.*, II, 83.

²³ Cf. *Hampshire Gazette*, 1790 and succeeding years. Between 1700 and 1740 the Massachusetts legislature passed a number of acts to encourage the raising of hemp and flax.

²⁴ Trumbull, J. R., *op. cit.*, I, 379.

²⁵ *Ibid.*, I, 466.

In 1793 we begin to find advertisements of other finishing crafts. Roger Wing of Williamsburg sold his clothier's business to Samuel Pomeroy in that year, who promised that "those who will please favor him with their cloths to dress, may depend on having the work done with fidelity and dispatch."²⁶ For a time at least, Williamsburg, the township at the head of the Mill River, seems to have been the center for clothiers. Clothier's notices come from this upper township for the next ten years. The first Northampton notice is that of Israel Barnard in 1804, who "intends to continue his clothier's business."²⁷ Thereafter numerous small enterprises are mentioned. Fulling mills began to dye as well as dress cloth. A clothier's notice from Williamsburg in 1795 carries the announcement, "Also, subscriber has lately set up Blue Die, he flatters himself that he shall carry on that branch to the advantage of all his employers."²⁸

"Stocking weaving" was introduced to the region in 1793 by a weaver, Louis Baral, of Norwich, Connecticut. He asks that

Any person who will furnish him with their yarn for the purpose of being wove into stockings—be requested to be very careful that their yarn whether woolen, worsted, cotton, or linen, be spun and twisted very slack, otherwise it will be impossible to weave it in such manner as to answer their expectations. He also weaves waistcoat and breeches patterns in neatest manner.²⁹

A year later he was advertising for an apprentice and a journeyman.

By the turn of the century we find water power beginning to be applied to carding machines on the Mill River. Arthur and John Scholfield put the first carding machine into operation at

²⁶ *Hampshire Gazette*, March 13, 1793.

²⁷ *Ibid.*, September 12, 1804.

²⁸ *Ibid.*, September 1, 1795.

²⁹ *Ibid.*, January 30, 1793. Thomas Webster, in his *Encyclopedia of Domestic Economy*, New York, 1845, says of the weaving of stockings, that "the machine at present used for weaving them called the stocking loom, was invented in 1589, by Mr. William Lee, a native of Woodborough, near Nottingham. . . . Although the stocking loom has, in a great measure, superceded the use of the knitting needles, the latter are not entirely laid aside." (Pp. 999-1000). And the *Encyclopedia Britannica*, 9th edition, says in its article on "Hosiery," "No improvement of consequence was effected on the apparatus (the stocking frame invented by Mr. William Lee) till in 1758 Mr. Jedediah Strutt . . . adapted it to the production of ribbed work."

Byfield, Massachusetts, in 1793, and in 1801 Arthur moved to Pittsfield where he introduced it to the western part of the state.³⁰ The Mill River region was not long behind, for in June, 1803, Roger Wing announced the erection of a carding machine in Williamsburg.³¹ The deed which conveyed the property on which he built his mill specified that Samuel Bodman should receive from him "annually carded 40 weight of sheep's wool which is to be in full for rent and damages of flowing or conveying the water and erecting the building thereon."³² Thereafter a series of machines for custom carding were set up along the river, frequently at locations formerly occupied by grist mills.³³ William Knapp installed a loom into his fulling mill in 1811.³⁴ The A. H. Bodman Company, a much larger establishment, founded as a partnership of clothiers in 1805, by 1814 had a water-driven carding machine, had introduced looms into the mill, and also custom dressing and dyeing. Members of the Bodman family were connected with this mill until 1833.³⁵ Other manufacturers combined custom carding, spinning or finishing with the manufacture of broad and narrow cloth, and some of them manufactured on shares,³⁶ gradually attaining an independent position. A Williamsburg mill, built in 1819 for cloth dressing,³⁷ nine years later received machinery for manufacturing; custom work was continued for a time, by way of transition, but gradually the firm turned to manufacturing its own material. In 1853 it was still operating. In 1817 Sidney Brewster was carrying on

³⁰ Cf. Cole, Arthur H., *The American Wool Manufacture* (Cambridge, Mass.), 1926, I, 87 ff.

³¹ *Hampshire Gazette*, June 29, 1803.

³² Original deed in the possession of a Northampton resident.

³³ Edmund Taylor set up a grist mill in Williamsburg in 1781, and in 1805 added a carding machine. In 1816 William Porter carried on carding at the grist mill of Ira Todd; in 1818 Edmund Taylor did likewise; and in 1823 Bonhan Clark carried on the functions of both miller and carder.

³⁴ *Hampshire Gazette*, March 13, 1811.

³⁵ *Hampshire Gazette*, September 1, 1813; U. S. 22 Cong., 1st Sess., *House Executive Document* No. 308, "Documents Relative to the Manufactures in the United States" (1832), 304-305.

³⁶ *Hampshire Gazette*, May 25, 1819, and May 9, 1820; J. C. Kayser and Co. Commercial Directory (Philadelphia, 1823), 109. William M. Knapp advertised in the *Gazette* of February 17, 1813, "Subscriber wishes to engage for six or eight hundredweight of wool to manufacture on shares."

³⁷ *Hampshire Gazette*, September 7, 1819.

spinning in his mill. He would "Convert any parcel of Rolls not less than 30 pounds, into yarn at 8 cents per Runn for warp and filling."³⁸ In this gradual way factory methods were introduced into these smaller establishments.³⁹

As workshops multiplied, so did the need for equipment. Local firms began early to make machines and tools. Timothy Jewett inserted notices advertising linen and woolen spinning wheels between 1793 and 1817. Cards were also manufactured. Designed to open the wool and arrange the interlacing fibres in a uniform sheet, they were not complex tools. The old hand cards were boards fitted with bent wires set in leather, and the carder merely moved one over another, the wool between. Benjamin Prescott was operating a "Wool Card Manufactory" by 1790 (at which time his notices say he continues his work).⁴⁰ Ebenezer Warner of Williamsburg began building wool-carding machines in 1812 "to be ready in the season."⁴¹ Two years later Bodman and Hopkins, also of Williamsburg, were importing cotton and woolen cards from a factory at Leicester, to be sold "at factory prices."⁴² The Amherst Cotton Manufacturing Company, but eight miles distant, was able to supply machines of all kinds for cotton and woolen manufacture, and in 1818 the Shepherd Woolen factory was making cards for both cotton and woolen factories.⁴³

Methods of payment were varied, and prices fell with improved facilities. Mill River customers had to pay ten cents a

³⁸ *Ibid.*, June 11, 1817.

³⁹ *Ibid.*, June 16, 1790. Custom dressing continued for many years. A number of receipts were found showing this. For example, "Abisha Sterns, Williamsburg. January 20, 1830—dressing 8¼ yds. London Brown Comon \$1.65." Also "Orrin Munyan, October 20, 1830—dressing 2¾ yds. at 2—\$.55. Paid June, 1833." (Receipts owned by a Northampton resident).

⁴⁰ Nearby Berkshire County had become a center of card manufacturing since Scholfield had settled there. (Cole, Arthur H., *op. cit.*, I, 92 ff.

⁴¹ *Hampshire Gazette*, March 11, 1812.

⁴² *Ibid.*, April 6, 1814.

⁴³ Household weaving and spinning of course continued. Premiums were offered for household weaving by the Hampshire, Franklin and Hampden Agricultural Society when it was formed in 1819. In that year Content Cornwell of Northampton was awarded \$5 for the best woolen cloth. Similar awards were made in succeeding years, and even in 1852 "Domestic Manufactures" were an item in the Cattle Show. But these now included no more than hearth rugs, hosiery, bed quilts, etc., articles featured today at Church Bazaars. (*Hampshire Gazette*, January 7, 1818).

pound in 1803 to have their wool carded. The increase in competition and in carding facilities brought the price down to eight cents a pound in 1805,⁴⁴ six cents in 1807 and 1808, and to five cents by 1819. It was always a cent a pound more if book credit were allowed or if the oiling were left to the carder. One subscriber advertised in 1808 that his terms were "seven cents a pound if not paid until the embargo is off,⁴⁵ six cents paid down, or a short credit. This is done to encourage the manufactures of our country and a spirit of industry."⁴⁶

Goods were commonly accepted in payment for services, as wool for the carding or dressing. The usual ending to a clothier's notice was "any kind of produce received in payment, or generous credit given." That credit was occasionally too generous is attested by not infrequent pleas that "those indebted to subscriber for carding wool are requested to pay before December 15," or the threat that if accounts of long standing are not paid shortly, "They will be sent to that mill where the toll is generally more than the grist." Sometimes acceptable articles were specified plainly: "He will receive in return all kinds of produce as well as lumber. Also cotton and linen rags, woolen stockings, woolen and linen cloth, etc. Liberal discount for cash, or in three months after work is done."⁴⁷

Woolen manufacture was evidently expanding. Craftsmen continued to teach their sons and younger relatives the trade: there was a succession of Bodmans, Knapps, Wings, Graves and Pomeroy's working at the craft. But it became common for manufacturers to advertise for helpers. Frequent calls began to appear in the newspapers for apprentices and journeymen. Local craftsmen extended their trade to outlying towns. In 1807 Theodore Chapin and Henry Pomeroy, cloth dressers, promised "inhabitants of adjacent towns who feel disposed to convey to us

⁴⁴ Taft quotes 8 cents a pound for picking, greasing and carding in 1805, in Pittsfield and Lanesborough, which is one cent under the Northampton price. Taft, Royal C., *Introduction of Woolen Manufacture into the United States* (Providence, 1882), 28.

⁴⁵ On the embargo see J. B. McMaster, *A History of the People of the United States*, III, 276 ff.; W. W. Jennings, *The American Embargo* (1921) and L. M. Sears, *Jefferson and the Embargo* (1927).

⁴⁶ *Hampshire Gazette*, August 10, 1808.

⁴⁷ *Ibid.*, September 4, 1811.

their cloth by stage may depend on having it safely returned to the place where it is received on shortest notice, free of expense to owner";⁴⁸ and again in 1819 Lewis Phelps suggested that "people in Hatfield, by leaving their cloth at Dr. White's Tavern with all directions upon it, may have it dressed in the best manner, and delivered at said Tavern weekly."⁴⁹ Clothiers began to come together for discussion of common problems.⁵⁰ Those of Hampshire County called a meeting in April, 1784, at Mr. Asabel Pomeroy's in Northhampton to consult on measures for the improvement of the trade "and other matters for their general interest."⁵¹ The woolen and cotton manufacturers of Hampshire, Franklin and Hampden counties met in 1815,⁵² and in 1819 the carding-machine owners of Hampshire, Worcester and Hampden counties came together to discuss fair prices for carding: "For common wool six cents per pound cash, seven cents and give one year's credit; and nine cents for half, and twelve cents for full-blooded Merino, with a fair discount on the two last grades of wool for cash in hand."⁵³

MISCELLANEOUS COLONIAL INDUSTRIES

By the late eighteenth century the region had a variety of other small industries. One was a pottery business established in 1773 at the rear of an artisan's home lot.⁵⁴ Clay brought from the neighboring banks of the Connecticut and shaped by hand was made into a coarse, red, partially-glazed pottery. The business changed hands, finally being taken over by Deacon Ebenezer Hunt, originally a hat-maker. Apparently Deacon Hunt supervised the efforts of a number of workers, for his products—pots, pitchers, jugs, bowls and platters—were sold by peddlers in many neighboring towns.

⁴⁸ *Ibid.*, August 5, 1807.

⁴⁹ *Ibid.*, August 17, 1819.

⁵⁰ In addition to the gatherings of clothiers and of cotton and woolen manufacturers, there is record of one or two other early associations. The house-joiners and cabinet-makers of Hampshire County held meetings, at least in 1796; a Hampshire Mechanic Association was extant 1805-1810; and a Northampton Mechanic Association in 1819 and 1820. (Cf. *Hampshire Gazette* for dates mentioned).

⁵¹ *Ibid.*, April 23, 1794; May 7, 1794.

⁵² *Ibid.*, November 22, 1815.

⁵³ *Ibid.*, May 25, 1819.

⁵⁴ Trumbull, J. R., *op. cit.*, II, 338-339.

A paper mill was built by William Butler, founder of the *Hampshire Gazette*, in 1786. Butler had come to Northampton at the age of twenty-two at the end of his term as apprentice to a printing and publishing firm in Hartford. He established the paper mill, one of the first in western Massachusetts, on the site of an old fulling mill in Bay State village; there several workmen were employed to make the paper for Butler's journal.⁵⁵ Water power drove the roller that macerated the rags, but most of the work was done by hand. Butler continued to operate the mill until 1817 when he sold it to his brother for \$7,000.⁵⁶ Daniel Butler, the brother, had previously conducted a hardware and grocery store and had dealt in iron; it is said that he supplied most of the blacksmiths in Hampshire County for many years. He engaged in paper manufacture from 1817 until his death in 1836. The mill was then bought by a group of men who established the Northampton Paper Mills.⁵⁷

The shoe industry was still in its infancy but already showed some variety. Not only "bespoke" work (work to order) but also work to stock was to be found, and soon after 1800 shoes from the larger-scale Boston market, which were presently to eclipse the local manufacture, began to be offered for sale in Northampton. Shoemakers also were doing "bespoke" work. "Eli Kellogg, boot and shoe making (reads the first entry in the *Gazette* in 1799) has removed his business to a shop opposite the Meeting House, where boots and shoes of all kinds may be had on shortest notice."⁵⁸

Soon there follows the notice for extra-sale work. In a call for journeymen in 1803, Erastus Knight announces that he has on hand "boots and shoes of most all kinds and sizes." And after that comes the announcement of Boston goods. By 1816 Seth Russell, shoemaker, is not only fashioning ladies' kid and morocco shoes himself, but is offering for sale "also first rate Boots and Shoes for gentlemen's wear, from the best manufac-

⁵⁵ *Northampton Directory*, 1860.

⁵⁶ Registry of Deeds, Hampshire County, *Records*, Book 42, 595.

⁵⁷ Registry of Deeds, Hampshire County, *Records*, Book 72, 531.

⁵⁸ *Hampshire Gazette*, May 1, 1799.

tories in Boston.”⁵⁹ Henceforth, newspaper notices show that Boston-made shoes were constantly at the command of Northampton purchasers, although it was several decades before small quantities of local manufacture ceased. Several large tanneries were operating at this period, but more than one shoemaker was still his own tanner. In 1802 Barnum Clark of Williamsburg was advertising for a journeyman bootmaker, an apprentice and a “journey man at tanning and currying.”⁶⁰ Later, from 1811 to 1822, the partnership of Bodman and Phillips maintained a bark mill in connection with their shoemaking business. From this shop came the Bodman and Hopkins tannery, an extensive business that flourished for more than ten years.⁶¹

A variety of other crafts did work both on order and for chance sale. Harnesses, axes, ploughs and like implements were made for chance sale and to order, and a great number of blacksmith shops flourished. We read Samuel Johnson’s notice in 1796, listing not only the carriages he would make on order, but adding that “he has a number on hand complete for market.”⁶² Other craftsmen were engaged in chaise and wagon making, using white oak, ash, and bass wood, and selling their products on “easy payments” like James Dunham,⁶³ or for “cash or chestnut coal” like Seth Pomeroy.⁶⁴ Cabinet makers began to advertise in 1802, promising prompt attendance to orders for all kinds of mahogany and cherry furniture; they would take lumber and produce in exchange. By 1819 some craftsmen were making various articles for stock “as cheap as can be furnished in the vicinity.”⁶⁵

One “carpet” maker, a Jacob Wicker, in 1806 apprised the inhabitants of Northampton and neighboring towns that

he had now in his employ a man from Europe who is master of every lustre, beauty, and ornament which can be given to the painting of carpets of every description. Those who wish for small carpets, immaterial how small, will have them executed with elegance. Those who wish for carpets, let the distance be

⁵⁹ *Hampshire Gazette*, April 10, 1816.

⁶⁰ Trumbull, J. R., *op. cit.*, I, 379, 466.

⁶¹ *Hampshire Gazette*, March 13, 1811; June 19, 1822.

⁶² *Ibid.*, September 28, 1796.

⁶³ *Ibid.*, February 2, 1802.

⁶⁴ *Ibid.*, September 16, 1807.

⁶⁵ *Ibid.*, July 13, 1819.

ever so great, by forwarding accurate measurements of the room or rooms, for which carpets are required, they will effectually correspond and answer every description given and with taste; and as the Duck Manufactory in this town possess those different qualities of canvas necessary for the various carpets now in use, no difficulty can arise to prevent dispatch for want of that article.⁶⁶

Merchants, not infrequently, undertook to sell goods of home manufacture. In 1794 Daniel Butler who sold dry goods, hardware, groceries, and iron and steel gave out the request that "those who have engaged him Woolen Shirting, to bring it in by 10th or 15th of November,"⁶⁷ and such notices were repeated for several years. Apparently Butler made agreements with the home workers as to price and times of delivery, though he presumably had no hold over the work done other than to refuse it if it were sent in later than the prescribed date.

Thus as the colonial period neared its close the household manufacture was already considerably modified by the work of craftsmen and artisans of different kinds. This development was, of course, normal to the pioneer community of colonial New England. On the whole the enterprises recorded so far belong partly to the self-sufficing economy of pioneers and partly to a community which is slowly emerging from that stage of economic development. The first growth of population made it possible for craftsmen to make a living by taking over certain of the more difficult tasks of household manufacture. Denser population permitted some specialization of production, both for local needs and for outside markets.⁶⁸ Woolen manufacture was more prominent than any other industry and further advanced, but many of the other standard crafts had begun to specialize. By the end of the eighteenth century the Mill River region had nearly caught up with the level of early American industry in more metropolitan localities.

⁶⁶ *Ibid.*, October 20, 1806.

⁶⁷ *Ibid.*, October 29, 1794. This was the Daniel Butler who purchased the paper mill from his brother.

⁶⁸ Beginning as a settlement of forty or fifty families, by 1820 Northampton had 2,854 inhabitants. Between 1765 and 1790 the population of Massachusetts had increased 55.1 per cent, while Northampton's increase was only 26.7; but in the next two decades, while the state was showing an increase of 11.6 in each period, Northampton's population had grown by 34.5 and 20.1 per cent in the two decades. (Chickering, Jesse, *Statistical view of the Population of Massachusetts, from 1765 to 1840*, Boston, 1846).

CHAPTER II

TWO COLONIAL BUSINESS MEN

Two of Northampton's business men in the late eighteenth century were engaged in enterprises involving considerable investment of capital and extending beyond the region. Levi Shepherd was especially prominent. Shepherd started as a merchant, having come to Northampton from Hartford in 1765 and opened an apothecary shop where he sold medicines and surgical instruments. A few years later he formed a partnership with Dr. Ebenezer Hunt. They expanded the shop to a general store adding to their stock groceries, dry goods and hardware. The business grew, in time reaching westward and northwestward to Great Barrington, Pittsfield and Williamstown, northward to Keene and Hanover, New Hampshire, and eastward to Ware and Hardwick.

In 1788 Shepherd took up the manufacture of canvas. In the *Hampshire Gazette* a notice appeared asking all those with sufficient knowledge of the making of canvas to send him their proposals of "price by the bolt, number of bolts they will engage to make, time they will engage to deliver it."¹ "It is of the opinion of the best judges," added the notice, "that this useful and necessary article may be manufactured in this part of the country to great advantage to the people, and in a short time become a most valuable article of commerce, as our country is so well suited to the raising of flax. . . . The legislature have offered a bounty of eight shillings per bolt upon all [duck] that shall be made in this state."² Of the demand for canvas the historian, Weeden, says, "Canvas was a prime necessity for the fisheries and for commerce. . . . About this time, [1785-1791], duck mills

¹ *Hampshire Gazette*, August 6, 1788.

² *Ibid.* It is interesting to note that this important eighteenth-century product practically disappeared by the end of the nineteenth century. "By 1850, with the exception of New York, Pennsylvania, Virginia and North Carolina, flax seed production had practically disappeared from the Atlantic coast; by 1892 flax was no longer grown in the Eastern States." C. S. Daugherty, U. S. Dept. Agr., *Yearbook*, 1902, 421-428.

were tried with varied success in several places. In 1788 or 1789 a large manufactory of linen canvas started in Boston."³

Although much spinning continued to be done at home, Shepherd moved ahead and erected a factory, where both spinning and weaving were carried on; here a boy or girl turned the wheels of the hand-operated machinery.⁴ From time to time he contracted for locally grown, water-rotted flax. Shepherd continued in duck manufacture until his death in 1805. During the seventeen years of its operation, his business had greatly expanded. We see this in his first and last advertisement for flax.⁵ In 1788, half cash and half dry goods were offered for a thousand pounds of flax; in 1805, Levi Shepherd and Sons desired ten to twelve thousand pounds of tow spun into yarn at nine cents a run.⁶ Undoubtedly Shepherd made use of his long-established trade connections throughout the countryside to market his product. We learn that he supplied duck to the government in 1800.⁷

Shepherd engaged also in rope-making. Cart and ladder ropes were then much in demand. The method of manufacture was to attach skeins of yarn to a disc which, turned by hand, caused the cords to twist into rope. The name of Levi Shepherd appears on the list of directors for the Locks and Canals on the Connecticut River, a project of the late eighteenth century to make the river navigable for larger craft. He was associated with the company which constructed a turnpike to the west. He was president of the board of directors of Northampton's first bank, organized in 1803. He also had large real estate interests; the county newspaper from time to time carried notices of land for sale by Levi Shepherd, not only in Northampton, but in other parts of the state and in Connecticut. Through his business activities Shepherd amassed what must have seemed at that time no small personal fortune, for his estate at his death was valued at \$100,000.⁸

³ Weeden, William B., *Economic and Social History of New England, 1620-1789* (Cambridge, Mass., 1899), II, 851.

⁴ Trumbull, J. R., *op. cit.*, II, 527. ⁵ *Hampshire Gazette*, August 6, 1788.

⁶ *Ibid.*, July 23, 1805. Tow is the coarse or broken part of flax or hemp separated by the hatchet or swingle.

⁷ *Centennial Hampshire Gazette*, September 6, 1886.

⁸ *Ibid.*

THE EDWARDS TANNERY

Another prominent business man of Northampton's early days was William Edwards, who made his career in effecting important improvements in the tanning industry.⁹ Edwards,¹⁰ a grandson of the famous Jonathan Edwards, had learned the tanning trade, first by apprenticeship in New Jersey where he served four years "for his board and the privilege of tanning with his master's stock four sheep skins a year," and then by work "as a journeyman at \$30 per annum and board."¹¹ About 1790, he came to Northampton, bought for £10¹² an old saw mill yard which had belonged to another branch of the Edwards family since 1700, and there erected a tannery.

The Edwards' tannery departed radically from the type that had preceded it. Edwards used water rather than horse power. In 1794 he shipped to Boston the first tanned leather to be sent there from Hampshire County. At first, the tannery was owned by Edwards alone; then it was operated by him as agent for a Northampton investor.¹³ Auxiliary tanneries were established in the nearby towns of Goshen and Cummington and the whole enterprise so expanded as to attract outside capital. In 1809 it was incorporated as The Hampshire Leather Manufactory at \$100,000,¹⁴ the participants and chief owners being Boston mer-

⁹ A description of the old Edwards tannery as it stood early in the nineteenth century was given to the author by D. E. Hoxie, a descendant of the Edwards family. "Below the dam on the north of the brook was a 'beam house' of two stories with two water wheels, north and east of which was a tan and curry house of two stories, and still north and east, after 1835, another two-story building for finishing and storing leather.

Some 75 or 80 vats were south and east of these buildings with two or three leaches. These last above ground, the vats below. A leach has a tank some 12 feet square and 8 feet high, and was filled with ground bark and water, which water was pumped by power from the brook. This pump was operated from the beam house wheel by a rod running on supports from the second floor, these supports being of such height as made it easy for a boy to straddle and ride, as it were, 'horseback' in and out as the crank revolved and the rod going with it. On the south side of the brook was a two-story bark mill and possibly other buildings. . . . A shed 100 feet long near the road stored the bark."

¹⁰ Bishop, J. L., *A History of American Manufactures from 1608 to 1860* (Philadelphia, 1864), I, 453.

¹¹ Bishop, J. L., *op. cit.*, I, 453.

¹² Hoxie, D. E., Typewritten manuscript, 49.

¹³ In 1799 Judge Samuel Henshaw came to the financial assistance of Edwards, buying the tanyard and employing Edwards as his agent.

¹⁴ Massachusetts, *Private and Special Statutes*, IV, 238.

chants. Edwards rented the property on shares and conducted all operations, receiving the hides on contract, and paying one-half the profits for the use of the establishment.¹⁵

Edwards early began a series of improvements which were of lasting benefit to the tanning industry. Prior to this time, the vats or leeches were usually oblong boxes, without cover or outlet, sunk in the ground near a stream; horses turned large wheels to crush the bark. Edwards first placed tanks beneath the vats to carry off the spent liquor, then supplied a junk to receive it, "next leeches above ground in tiers, one above another, raising the liquor by a suction pump," and finally he erected substantial buildings.¹⁶ His bark mill, built in 1795,¹⁷ was run by water power, the first departure, it is believed, from the old horse mill. Later he patented the copper heater, long continued in use by tanners, the hide-mill, or fulling stocks, and the beating or rolling mill.¹⁸ The saving of manual labor effected by these inventions gave great impetus to the manufacture of leather. The roller, patented in 1812 along with two tanning processes, was a particularly fortunate improvement and was used by tanners for a great many years in nearly the original form.

Beginning with a stock of fifty hides, Edwards so extended operations that in 1809 his three establishments had a combined capacity of 16,000 hides. In a letter dated November 29, 1809, to the postmaster of Northampton, he said: "We have 672 vats, three bark mills which grind our bark by water—the same number of hide mills which go by water for softening foreign hides—also three rolling machines which also go by water. One-third of the hides tanned in the U. S. are imported hides. They come from Spanish colonies almost wholly."¹⁹ From time to time he advertised a shipment of South American hides. In the years 1809 and 1810, Edwards sent to market leather worth \$175,397.²⁰

As was customary in early enterprises, journeymen and apprentices, for whom advertisements appeared intermittently in

¹⁵ Bishop, J. L., *op. cit.*, II, 145.

¹⁶ *Ibid.*, I, 453.

¹⁷ *Hampshire Gazette*, June 10, 1795.

¹⁸ Bishop, J. L., *op. cit.*, I, 442.

¹⁹ *U. S. American State Papers, Finance*, II, 431.

²⁰ *Centennial Hampshire Gazette*, September 7, 1886.

the newspapers, were boarded by Edwards' company as part of their wages.²¹ Purchases of raw materials were paid for partly in finished products.²²

In 1817 William Edwards left Northampton to manage a large tannery in New York State.²³ Thereafter several companies succeeded one another at the Edwards plant, and with fluctuating fortunes, the mill continued to operate until the site was finally abandoned for use as a tannery about 1846.²⁴

²¹ In 1811, a plea was made for someone to contract to board twenty to twenty-five laborers, *Hampshire Gazette*, October 2, 1811.

²² Part cash and part leather were usually paid for bark, the price of which varied little from \$2 or \$2.50 per cord for hemlock, and \$4 for oak. The Bodman and Hopkins tannery drew its raw materials from as far away as Charleston. Its hemlock bark it got nearby at \$3 and \$3.50 per cord, and paid for it in leather, boots and shoes, and sometimes cash. If the supplier of bark would take leather, he could frequently obtain part or full payment in advance; if he demanded cash he often did not receive it until six months after delivery. (Cf. *Hampshire Gazette*, 1799-1817).

²³ There he became superintendent of the newly organized New York Tannery, which had a capacity of 50,000 hides, reputedly the first in the United States wholly under cover. (Bishop, J. L., *op. cit.*, III, 238).

²⁴ A tannery of much smaller capacity was that of David Edwards and David Dewey. Exactly where it was located cannot be ascertained. They bought, on April 4, 1814 (Edwards-Dewey Day Book), of Nathaniel Edwards, 3rd, the tan works which, according to a descendant, were built by Col. William Edwards. This was perhaps a part of the enterprise not included in the Hampshire Leather Manufactory, or perhaps the date "1815," as given above was inaccurate. The Day Book of this partnership, which is somewhat difficult to interpret, indicates the size of the establishment as follows: Gross output—March 21, 1814—December, 1814, inclusive, \$976.35; 1815, \$1,402.42; and 1816, \$1,512.47. Occasional items such as potatoes, flour, or the mending of shoes, are included, but the bulk of the ledger is concerned with sole, upper, harness and other leathers. The names of many Northampton and Williamsburg persons reappear again and again, both as debtors for leather and creditors for hides or bark. The business seems to have been almost wholly local. Leather was regularly exchanged for bark, hides, calf or sheep skins, promissory notes, and, of course, for cash. By 1817, however, the strictly tanning accounts began to be interspersed with charges for "pork," "veale," "rent of a horse," and such like, and the gross aggregate indebtedness to the firm was but \$379.26. Between 1818 and 1820, many changes are recorded for hay, pork, the use of horse and wagon, etc., and but \$6.95 for leather. Thereafter the ledger is that of a public house, for "brandy," "flip," etc., are only very occasionally accompanied by a reference to the tanning of hides. Another ledger which belonged to the Edwards-Moody firm (Leander Moody, brother-in-law of David Edwards, took Dewey's interest in the business) gives leather accounts for the years 1826 through 1830. It has been impossible to differentiate the separate years, but the aggregate gross business seems to have been about \$51,292. After the death of David Edwards in 1829, a son-in-law, Horace Wright, became Moody's partner. The firm of Moody and Wright, according to estimates from their accounts, dated 1830-1835, enlarged the business and took in some \$59,712 in the five years. About one-fourth of this product was marketed locally, the remainder in

The careers of Shepherd and Edwards are perhaps typical of the age in which they lived, when in many separate centers of the young country a new business class was beginning to raise itself above the level of its contemporaries, the petty tradesman and handicraft employer catering only to his immediate vicinity. Levi Shepherd, the merchant first and foremost, becomes merchant-capitalist, manufacturing employer, investor and financier on a considerable scale for a village community, deriving wealth from the transportation development of his own and neighboring states and owning property of various sorts in a number of localities. In later days, we shall see, it was the Shepherd wealth that went to found the first woolen factory in Northampton. One sees in Shepherd's case also an interesting early example of real estate investment as an adjunct to banking and mercantile investment. William Edwards, on the other hand, is the professional manager first and foremost. He not only manages his own rapidly expanding business competently, as did Shepherd when he turned to manufacturing, but he devises new methods of production, making improvements in the tanning industry that last for a generation, and he ends his days as superintendent for a distant concern, said to be one of the most advanced in the country.

New York. (U. S. House Executive Document No. 308, p. 310). Hides came from Hampshire County and from South America in the ratio of about two to one. In 1837, the Massachusetts Assessors' Returns list a tannery employing six hands and having an output of \$10,000 annually. About 1846, however, Wright and Hoxie (another son-in-law of David Edwards) were forced to abandon the tannery.

That another tannery was established not long after the opening of Edwards' business, is evidenced by advertisements for oak and hemlock bark in 1794 (*Hampshire Gazette*, September 17, 1794), signed by Thomas Bridgman and Aaron Rice. They formed a partnership in November, 1796 with William Edwards for purchasing and grinding bark, an arrangement which was terminated in 1799 at the death of Bridgman. The following year the works were purchased by an Elisha Mather who continued the business for twenty-three years. In 1831, Bodman and Hopkins of Williamsburg were producing about \$6,000 worth of leather, mostly from South American hides, and sending the greater part of their products to Boston. They employed five men at the relatively high wage of \$1.75 per day. (U. S. House Executive Document No. 308, *op. cit.*, 306-307).

CHAPTER III

WOOLEN MANUFACTURE

The first fully developed factory on the Mill River was Shepherd's woolen mill established in 1809. It was founded by three sons and a nephew of the Levi Shepherd whose business activities were so outstanding in the decades after the Revolutionary War. It became the largest of the woolen mills and was mainly responsible for the region's thirty years of prominence in the manufacture of wool.

Many early woolen factories developed gradually, as did the Bodman and Sears and Brewster plants in the Mill River region.¹ They began as fulling and carding mills, and in time introduced all the processes until the mills became full-fledged factories.²

¹The A. H. Bodman Company was mentioned in Chapter I. An advertisement in the late summer of 1813 announced the extensive improvements that would allow it to "carry on the important business of manufacturing and dressing broad or narrow cloth." (*Hampshire Gazette*, September 1, 1813). In 1820, A. H. and Sylvester Bodman dissolved their partnership, but in 1824 another was formed by Joseph Bodman and John Wells; according to Gallatin's Report of 1833 (*U. S. House Executive Document* No. 308, pp. 304-305) it produced annually \$13,000 worth of satinet, all of which was sold in Boston. They used American wool and employed seven workers, four men and three women. By 1837 this mill was owned by Enoch and L. L. James, who continued to manufacture satinet.

There was also a woolen mill built by Nathaniel Sears in 1819. (*Hampshire Gazette*, September 7, 1819). The mill established in 1813 in Leeds by Sidney Brewster could not be called a real factory in its early years, but rather a supplement to household production. But by carrying on the various processes for a custom market and by manufacturing on shares, an independent position was finally secured. A typical notice was:

"Subscribers—solicit custom in Dying and Dressing Broad and Narrow Cloths. They will also take wool to manufacture on shares or by the yard, into broad or narrow cloth. Having been regularly bred to the business, they feel confident of giving satisfaction. They have likewise an excellent Machine in good order for carding fine or coarse wool." (*Hampshire Gazette*, May 9, 1820).

By 1823 this firm was reported as being "a small Woolen Factory which works about 9,000 pounds of wool annually into broadcloths. It contains two double carding machines, four broad looms, and the requisite number of jennies." (J. C. Kayser and Co., *Commercial Directory*, Philadelphia, 1823, p. 109). Lewis Phelps, who at first did carding and dressing for customers, announced in the *Gazette* of May 25, 1819, that "Wool will be manufactured into satinet, gerseymere, or common single-width cloth on shares," had in 1835 a complete flannel mill.

² Cf. Cole, Arthur H., *op. cit.*, I, 229.

The Shepherd firm, unlike these struggling concerns, began as a large business with a capital of \$100,000. It was known as the Northampton Cotton and Woolen Manufacturing Company. The three Shepherd brothers and their cousin James, apparently began the business as a family partnership,³ first as James Shepherd and Company, then from 1814 to 1817 as Thomas Shepherd and Company.⁴ James, who throughout was active manager, then took over the whole interest. Then another Northampton partner joined him, and later (1819) outside capital entered when a partner from Boston joined the firm. In 1826 the company secured a charter, the capital was increased to \$130,000, and the name changed to the Shepherd Woolen Manufacturing Company.⁵ The rapid changes in organization of the company, from family partnership to individually owned business, again to partnership, and finally to a joint-stock company, were typical of the general movement among woolen enterprises of the time.⁶

The Shepherd concern was also typical of the larger woolen enterprises in respect to the source of its original capital. Struggling small concerns, like those of Bodman and Sears mentioned above, began with little capital, and slowly accumulated enough from the business itself to finance expansion.⁷ But factories that began on a considerable scale like Shepherd's, drew upon the main reservoirs of wealth of the day. Commercial capital, both from foreign and domestic trade, was a principal means whereby the infant woolen industry was financed in America. Cole mentions among others the Hazard family of Rhode Island whose wealth was accumulated in commerce, and one of whose members, Rowland Hazard, became a woolen manufacturer; also a Boston mercantile firm's interest in the Merino Wool Factory Company of Dudley, Massachusetts. He quotes from a British exporter of cloth in 1828 who says that many "respectable merchants" were investing their capital in woolen mills. Occasionally manufacturers, successful in one line, notably the DuPonts of

³ *American State Papers, Finance*, V, 813-814.

⁴ *Hampshire Gazette*, April 6, 1814; June 25, 1817.

⁵ *American State Papers, Finance*, V, 813-814.

⁶ Cole, Arthur H., *op. cit.*, I, 233. ⁷ *Ibid.*, 229.

Delaware, who made gunpowder, and Samuel Slater of Rhode Island who made cotton goods, put their surplus into woolen factories.⁸

The original capital that launched the Shepherd woolen factory in 1809 obviously came from the successful enterprises of Levi Shepherd, father of three of the owners, that is, from both manufacture and trade. There must be included also his wealth derived from real estate and banking investments, both of them business activities commonly engaged in by the more prominent colonial merchants. Once the woolen enterprise was fairly started, its own profits appear to have sufficed to finance its expansion and improvements; this again was usually true of woolen companies of the period.⁹ James Shepherd declared that from 1809 to 1824 "we made it a very fair business," and 1825, he tells us, "was a very tolerable year."¹⁰

However, the business did have many ups and downs. Although the factory was in continuous operation from 1809 to 1827, it suffered in the period of readjustment after the War of 1812, ceasing to manufacture for its own stock for some fifteen to eighteen months after the close of the war, and working on contract for others. Although many woolen companies prospered after the middle 1820's, and the industry itself by 1830 was firmly established,¹¹ the Shepherd Company found itself in difficulties. When a survey on July 1, 1827, showed a loss of \$30,000 for the preceding eighteen months, the company decided to close. Shepherd assigned the cause of his losses to the "low price of our clothes on the market."¹² General conditions were unfavorable following the tariff of 1824, but the duty on foreign wool was particularly injurious to a manufacturer of fine goods like Shepherd who imported nearly one-third of his supply. Customers, moreover, Shepherd complained, seemed to prefer English goods as against those of American manufacture of the same quality and price. Although he had other property, James Shep-

⁸ *Ibid.*, 226 ff.

⁹ *Ibid.*, *op. cit.*, I, 228-229.

¹⁰ *American State Papers, Finance*, V, 815.

¹¹ Cole, Arthur H., *op. cit.*, I, 230-231.

¹² *American State Papers, Finance*, V, 816.

herd apparently lost it all in the failure of the woolen company. Soon thereafter he moved from Northampton to Worcester.

During the period of Shepherd control, the company ranked as one of the important woolen manufacturing firms in New England.¹³ The capital of \$100,000 with which it began, was an amount comparable to the capital of the Middlesex Company of Lowell when it was launched in 1830.¹⁴ In size the Shepherd plant measured up to a number of the companies described by Cole: in the 1820's it had a labor force of 118, as compared with the working force of 128 of Samuel Salter and Sons' of Webster, Massachusetts, and of 220 employed by one of the "two large plants" of Somersworth, New Hampshire. "Such well-known establishments as the Oriskany Manufactory and the Glenham Company reported working forces of 147 and 130 respectively." The Pontoosuc Manufacturing Company of Pittsfield, when it was established in 1825, began with six carding machines, five jennies, a Brewster frame and twenty power looms, a factory of good size; about the same time the Shepherd mill was equipped with twelve carding machines, two Brewsters, twelve spinning jennies, and thirty-five broad looms.

TECHNICAL IMPROVEMENTS

The Shepherd factory, unlike the smaller mills, began with power machinery, and sold in outside markets from the start. All processes of manufacture were carried on at the plant, although during the first year, and perhaps longer, some of the spinning and weaving were sent out to be done by workers in their homes. As late as 1818 advertisements appeared in the newspapers for home workers to pick wool. "Shepherd and Jones have 7,000 pounds of Spanish Wool which they wish to have picked. Those who wish employment can have the wool left and received at their houses, by leaving their names at Captain Dickinson's store."¹⁵ Like other woolen factories the Shepherd mill continued to do custom carding for several years. The last reference we find to this is one in 1812.¹⁶

¹³ Cole, Arthur H., *op. cit.*, I, 195-196.

¹⁴ *Ibid.*, 257.

¹⁵ *Hampshire Gazette*, January 7, 1818.

¹⁶ *Ibid.*, June 3, 1812.

The Shepherd mill had abundant water power to care for the innovations undertaken by the company. The firm early experimented with application of power to spinning machines. The spinning jenny had long been in the factory, but, although manufacturers investigated the possibility, they tended to think jennies were unsuited to power operation. About 1811,¹⁷ one of the weavers, who had come from a woolen mill of Yorkshire, suggested to Shepherd that he have some spinning jennies built and try running them by water. The work was executed locally and some of the machines set up. By January, 1812, the factory was moving by water "a carding machine and 150 spindles, and by hand 410 spindles."¹⁸ Spinning was done not only on the jenny, which required the labor of a man, but on the Brewster, which could be tended by girls. Since the latter was confined to coarser work, and the Shepherd's made fine cloth, they spun about two-thirds of their yarn on the jenny.

The first mention of a power loom for woolen goods is a reference to a patent in 1816 by Shepherd and Thorpe of Taunton, Massachusetts.¹⁹ Eager to try this improvement, James Shepherd obtained from Providence the very next year a great unwieldy power loom, which had to be reduced and simplified by his machinery superintendent.²⁰ In 1822 a local firm began the construction of power looms.²¹ Shepherd estimated that prior to the introduction of power looms the cost of weaving broadcloth was between eighteen and twenty-eight cents per yard, and subsequent to it, but ten cents.²² By 1823, according to one source, the factory had a capacity of 250 pounds of clean wool per day produced by twelve double carding machines, two Brewsters, twelve spinning jennies, and thirty-five broad looms, twelve of which were "of new construction, worked by water." About 1,300

¹⁷ *Ibid.*, 1861. (From a book of clippings belonging to a Northampton resident).

¹⁸ *Pittsfield Sun*, January 11, 1812.

¹⁹ Bishop, J. L., *op. cit.*, II, 233.

²⁰ *Hampshire Gazette*, 1861.

²¹ The firm of Hayden and Congdon manufactured power looms in an abandoned cotton mill in Haydenville. They continued until about 1828 when the plant was turned to the manufacture of other kinds of machinery.

²² *American State Papers, Finance*, V, 814.

spindles were kept busy.²³ The latest machinery for warping and dressing we know had been introduced in the Shepherd factory before 1828.²⁴ It reduced the cost of this process in cloth making by 75 per cent.

Technical changes were not simply brought in from other industrial centers. Craftsmen already working in the mill showed great ingenuity devising improvements. There was the weaver on whose initiative spinning jennies were built locally to be run by water, and power looms brought from Providence were experimented with and adapted for use in the Shepherd factory. Characteristically for the region, a local firm was soon established expressly for the manufacture of power looms; it was one of the first business ventures of the Hayden brothers, the local inventors who later became prominent as manufacturers.

RAW MATERIALS

Besides pushing technical innovations and improvements, the Shepherds displayed extraordinary initiative in regard to raw materials. As manufacturers of fine broadcloth the quality of their wool was a constant problem to them.²⁵ Efforts of manufacturers to procure a finer wool than that grown domestically had resulted in 1801 in the importation from Spain of the first full-blooded merino ram.²⁶ Further importations from both Spain and France in succeeding years greatly improved domestic breeds and was a stimulus to manufacturing. An impetus to the demand for fine woollens of American manufacture was given by the embargo

²³ Kayser's *Commercial Directory*, 113.

²⁴ *American State Papers, Finance*, V, 814.

²⁵ The first fine broadcloths in the United States are said to have been produced in Pittsfield, Massachusetts, in 1804 by Arthur Scholfield.

²⁶ The importation of the first full-blooded merino ram, Don Pedro, was followed in 1802 by 100 more merinos sent by the Hon. David Humphreys, United States Ambassador at Madrid. (Bishop, J. L., *op. cit.*, II, 94). About the same time the American Minister to France, Hon. Robert R. Livingston, shipped a number of merino rams from the national stock at Paris.

The need for a cheaper fabric than the fine broadcloth with which so many early mills started, was supplied by the coarser satinet with its cotton warp. It required less care in finishing and so was easier to manufacture. Extensive production of satinet in the United States did not begin until about 1808, but it increased gradually in popularity and by 1836 had replaced broadcloth as the chief product of woollen factories. (Cole Arthur H., *op. cit.*, I, 199, 200, 207).

and non-intercourse acts which cut off the popular foreign fabrics, and this in turn accentuated the interest in merino breeding.²⁷ In the same year that the Shepherd factory was opened (1809) a Massachusetts agent was advertising merino rams in the *Hampshire Gazette*. By autumn of that year Thomas Shepherd had acquired a small flock. These were used for raising half- and three-quarter-breed merinos for the Shepherd's own use and for letting. Like many other sheep-raisers of New England, the Shepherds participated in the "merino mania" of the embargo and post-war years, and are said to have paid as high as \$1,000 for a single buck and \$100 to \$300 apiece for ewes.²⁸ By 1818 the enthusiasm for merinos had completely cooled,²⁹ but another and lesser mania set in a few years later with the importation of the saxony sheep. Saxony was a finer wool than merino and commanded the highest market price.³⁰ James Shepherd is said to have been the first to import this breed, probably in 1822, three or four years before general interest in it reached its height.³¹ By this time Shepherd had increased his flock to between 1,200 and 1,400 sheep, which supplied his factory in 1826 with 3,200 pounds of wool.

The Shepherds' efforts to improve the quality of wool must have had some results. From 1818 on their wool won many premiums at Massachusetts fairs and exhibitions.³² But they were able to raise only a fraction of the total supply the factory required. From January 1, 1826, to July 1, 1827, they purchased 102,159 pounds of wool.³³ For Massachusetts as a whole Shepherd estimated that not more than one-third of the wool was

²⁷ Cole, Arthur H., *op. cit.*, I, 200-201.

²⁸ *Centennial Hampshire Gazette*, September 6, 1886.

²⁹ An address before the Massachusetts Agricultural Society at Brighton in 1818, began: "Shall we dare to mention the Merino Sheep, or shall we awaken recollections of unsuccessful experiment and individual loss?" (*Gazette and Public Advertiser*, December 22, 1818).

³⁰ Shepherd paid \$1.14 and \$.95 per pound in 1826 and 1827 for saxony; \$.85 for merino; and \$.65, \$.53 and \$.45 for American. *American State Papers, Finance*, V, 814.

³¹ *Hampshire Gazette*, November 20, 1822; Cole, Arthur H., *op. cit.*, I, 81.

³² *Hampshire Gazette*, October 27, 1818; November 16, 1819; October 16, 1822; October 22, 1823.

³³ *American State Papers, Finance*, V, 817.

locally grown.³⁴ The remainder came from other sections of New England, New York and from abroad. Probably in the end the Shepherds had little to show for their attempt to supply raw materials. But their efforts are interesting, carried on as they were, as an adjunct to their business of manufacturing woolen cloth.

LABOR AND MARKETS

For their labor supply the Shepherd's did not depend entirely upon local craftsmen. New machines required new skills and, with their accustomed energy, they sought this skill where it was certain to be found. In its earliest years at least, the Shepherd factory is known to have introduced secretly both workmen and materials from England, where manufacture after the new pattern had been successfully carried on for years. Beyond that, the mill relied upon local labor, workers skilled in the old processes of carding, weaving and dyeing, who could be taught to work on the machines. Newspaper notices throughout 1814 suggest some difficulty in obtaining labor. A method widely employed at the time was the hiring of whole families who occupied company owned houses, and most of whose members worked in the mill. It was such a family for which the Shepherds were advertising in the *Hampshire Gazette* of January 26, 1814.

Wanted—at Manufactory of James Shepherd and Co., a steady and industrious family, consisting of man and wife and two girls of from fifteen to twenty years of age, and two or three boys, from twelve to eighteen years of age. Constant employment will be given to the whole family. The business of the girls will be to pick wool, and of the boys to tend carding machines and indoor work. Convenient house is ready for such a family, where they can live by themselves, rent will be cheap, price of wood is also cheap.

They have also a House to rent at Manufactory suitable for a Widow and small family, to whom constant employment will be given.

Apprentices and journeymen were sought repeatedly. Sometimes the notices specified wages.

³⁴ Western Massachusetts was an important sheep raising section. *The New England Magazine* for February, 1832, p. 164, gives the number of sheep in each county of Massachusetts, the largest being 99,253 for Berkshire, the next 54,714 for Hampshire.

Wanted—four boys from twelve to fourteen, to whom wages will be given at the rate of \$4 per month through the year and board. Also want eight boys, sixteen to seventeen, as apprentices. \$40 a year in cash shall be paid to them as compensation for clothing, and at the age of twenty-one, \$100. Also wanted three steady and industrious girls for burling cloth. We will pay them \$1 a week and board. Also want to contract with a good joiner to build two dwelling houses the ensuing summer.³⁵

The firm provided boarding houses for some of its workers. In 1813 Shepherd's factory was asking for a "prudent and discrete family to take charge of a house and board twelve or fifteen men."³⁶

The Shepherd factory was located four miles from Northampton at a place known until 1849 as "Shepherd's Factory" or "Shepherd's Hollow" and after that as Leeds. Here surrounding the plant a little community grew up, with boarding houses, family dwellings, and a store, all belonging to the mill. The store was kept open until 1827. In the 1820's the factory employed 118 workers, almost half of them women and girls.³⁷ In 1825-27 girls were tending the mechanical shearing machines, which required "one superintendent at \$32 and seven girls at \$8 a month, including board, and these attend twenty pair of shears." Girls were also employed in burling, linting and marking cloth. The employment of girls and women to displace men was an obvious step, since their wages were far lower than men's: girls employed in burling at Shepherd's were paid \$8 a month, including board, and young women were said to average \$13 a month; men's wages on the other hand averaged \$21 a month, young men's \$14 and boys' \$6. The fuller and the superintendent of shearing received the highest rate of \$32 a month including board, and the superintendent of raising and napping, \$26. Commonly board was included in all employees' wages. For men the rate was \$1.50 a week, for boys and girls, \$1.³⁸ The Shepherd mill seemed to

³⁵ *Hampshire Gazette*, May 4, 1814.

³⁶ *Ibid.*, Oct. 20, 1813.

³⁷ *American State Papers, Finance*, V, 815. Cf. also Cole, Arthur H., *op. cit.*, I, 240. There were 32 male workers over 20 years of age, 16 between 18 and 20, 16 from 8 to 18 years, and 54 women and girls.

³⁸ *American State Papers, Finance*, V, 814-815.

be paying wages very similar to those paid by other woolen manufacturers who gave testimony at the Congressional inquiry at the time James Shepherd was heard.³⁹ From James Shepherd himself we have a description of working hours in the factory. "In summer, hands work from sunrise to sunset, deducting one hour for the two meals of breakfast and dinner; this continues for six months. In the succeeding six months we begin at daylight and work till eight o'clock at night, deducting one hour for the same two meals."⁴⁰ In other words a net working day of 9 to 10 hours in winter and 13 to 14 in summer.

Shepherd initiative was apparent also in the marketing of the factory's products. In the 1820's the firm had a selling agent in Boston,⁴¹ and about three-fourths of its product went to merchants and tailors there; a small part was sold to Philadelphia and New York. In contrast to most Mill River enterprises, which remained local in character, the Shepherd mill was in connection with the main commercial centers of the country. In all respects the Shepherds seem to have shown rare entrepreneurial skill for men whose enterprise came at a time when the factory system was just emerging in America, and who had never worked outside this inland industrial region.

THE SHEPHERD MILL CHANGES HANDS

When James Shepherd gave up the woolen factory it passed to a firm, whose source of capital we do not know, which began operations in 1831 as the Northampton Woolen Manufacturing Company. In the first year the output was worth more than \$175,000, most of it in broadcloth.⁴² This was marketed entirely in Boston, with the exception of about \$8,000 in goods sold at the factory. The working force of 120 was approximately the number the Shepherds had employed, although there were now a larger proportion of women.⁴³ Women were paid something less

³⁹ Cole, Arthur H., *op. cit.*, I, 240.

⁴⁰ *American State Papers, Finance*, V, 815.

⁴¹ Kayser's *Commercial Directory*, 113.

⁴² United States *House Executive Document*, No. 308, 308-309. Broadcloth output was valued at \$153,370 and satinet at \$22,536.

⁴³ "Average number of males over 16....51.

Average number of boys under 16.... 8.

Average number of women and girls...61."

than two-thirds of the wages given to men; forty cents a day as against sixty-five cents. One bond between the factory and its employees was broken by the new company, for it no longer furnished board. The wages are cited in each case with the appendage, "They boarding themselves." In 1845 a government report showed the Company to have doubled its labor force since it took over the Shepherd plant,⁴⁴ to have increased the amount of wool consumed from 127,000 pounds in 1832 to 220,000 pounds, and to be producing 71,786 yards of broadcloth as against 43,000 yards in 1832. The cheap, cotton-warp satinnet had been replaced by the all-wool cassimere of which 20,428 yards were manufactured. Just as the period under discussion closed, in 1845, the company increased its capital to \$200,000.⁴⁵

WOOLEN MANUFACTURE BEFORE 1845

At no time in its history, perhaps, did the Mill River region more closely reflect what was going on in other New England centers than in the early factory period when wool was its principal industry. Throughout the colonial period the number of woolen craftsmen in the region had been increasing, and by the turn of the century a number were manufacturing for neighboring towns. Out of these small establishments, highly typical of New England at the time, and in this region represented by the Bodman, Sears and Brewster concerns, there gradually emerged full-fledged factories, producing, however, on a small scale. Equally typical were important factories like the Shepherd company, representing more advanced development. Strictly indigenous to the region, the Shepherd factory yet began with a fairly large capital derived from the commercial and manufacturing businesses of the Shepherd family. The company's experiments with new machine's and raw materials, its extensive markets, and its labor policies, were closely similar to those of other large firms. The Shepherds conducted the business successfully up through the first period of the expansion of the

⁴⁴ Massachusetts, *Statistics of Conditions of Production in Massachusetts for Year Ending April 1, 1845* (Boston, 1846).

⁴⁵ Massachusetts, *Private and Spécial Statutes*, VIII, 612.

woolen industry. When finally they had to give it up, it was continued for many years by other owners as a prosperous enterprise. Not until the decade of the fifties, described by Cole as a "period of relative backwardness" in the country's woolen industry,⁴⁶ a decade when the number of woolen establishments in the country decreased and the industry generally was marking time, did the Northampton firm begin to decline.

⁴⁶ Cole, Arthur H., *op. cit.*, I, 269.

CHAPTER IV

GENERAL INDUSTRIAL DEVELOPMENT, 1815-1845

The growth of woolen manufacture was accompanied by a general industrial expansion in the years after 1815. Cotton became established early as a factory industry, but far ahead of it for many years ran a local product of considerable fame, the cloth-covered button. Machine production of buttons in the region soon advanced that industry to a place second only to wool.

BUTTON MANUFACTURE

Local legend has it that the sewed button business originated in Williamsburg with Mrs. Elnathan Graves about 1822.¹ She noticed a cloth-covered button on a guest's coat, ripped it off after he had retired for the night, examined its making closely, and then returned it to its proper place. She made a few buttons like it and took them to a local mercantile shop where they were received with enthusiasm, and she was urged to make more. In this chance way is said to have begun the thriving button industry of the region.

Samuel Williston, of the neighboring town of Easthampton, was a son-in-law of Mrs. Graves. Whatever may be said for the guest's coat tradition, Mr. Williston soon developed button making from a small enterprise which employed a few women in the Williston home, to one which, it is estimated, gave work to the women of over a thousand families of Easthampton, Northampton, Williamsburg and other towns.²

By 1831 an annual product of \$40,000 was being marketed in New York, the West Indies and South America, all manufactured by the putting-out system. Only the molds were not made in the homes. Says the McLane Report of 1832:³

¹ From the account of a Williamsburg resident.

² This was about 1836 or 1837. Van Slyck, J. D.; *Representatives of New England Manufacturers and Manufactories* (Boston, 1879), II; also *Industry*, XIII, April 6, 1929, published by Associated Industries of Massachusetts.

³ *House Executive Document* No. 308, pp. 312-313.

The manufacture of lasting and silk twist buttons is entirely carried on in private families by females, who are paid by the groce. Materials are furnished, and contracts made with some hundreds of females residing in several adjoining towns, by one person, who, in the above statement, has been considered the capitalist. They call upon him once a week and procure molds, silk and lasting, etc., and, at the same time bring the product of their labor for the previous week. A great deal of this labor is performed in scant times, when they have nothing else to do; which connected with the circumstance of the operatives being so scattered, renders it difficult to obtain an accurate estimate of this business in the respective towns, and to apportion time and wages by the day. Six years ago the market was entirely supplied by the foreign article, which has gradually been displaced, until it is now entirely excluded by the manufacture of this county alone. In the meantime, the prices have fallen more than fifty per cent while experience and skill have produced an article of double the intrinsic value of that formerly imported. The molds are made by machinery carried by water power, tended by females.

Meanwhile Joel and Josiah Hayden, two enterprising men of inventive skill, were making buttons of the japanned, tin and metal shanked lasting kind, as well as button molds. The manufacture of metal buttons had begun at Waterbury, Connecticut, at the beginning of the nineteenth century, and Connecticut became the center of the button industry.⁴ The Haydens made the buttons by hand, employing two or three helpers when they started production in 1831 in Haydenville. In that year they were credited with an output worth \$12,000. (They also made locks and castings valued at \$15,000, but this business was given up within a year.) One other button business operating in Williamsburg employed some forty men at 33 cents a day to make silk twist and lasting buttons. A reputed \$25,000 output was marketed, half in Massachusetts and half in New York.⁵

Samuel Williston, on one of his trips to New York, saw buttons of English manufacture that had been made by machinery. He took some of them to the Hayden brothers, so the account runs, with the proposal that the Haydens devise button-making machines and manufacture the buttons, and he would furnish the

⁴ *Encyclopaedia Britannica*, 10 ed., "Buttons."

⁵ *House Executive Document* No. 308, pp. 306-307.

capital, sell the product and share the profits. The Haydens accepted the proffered contract and within a year, with the help, it is said, of an English craftsman who had been a button-maker abroad, produced a button-making machine.⁶ The machine was set up in the Haydenville mill, enlarged since the days when it had been used to make cotton cloth. Thus button making was transformed from the relatively slow and laborious putting-out system to a factory process. The Hayden-Williston firm was the first in the country to manufacture covered buttons by machine.⁷ For the year ending April 1, 1837, the value of buttons made in Williamsburg (the township where Haydenville is located), was more than one hundred thousand dollars. Thirteen men and 105 women were employed, and the firm shipped its products to New York, the West Indies and South America. The Haydens did not wait for new ideas of manufacture to be brought to them. In 1843 on a visit to England, Josiah Hayden investigated the manufacture of horn buttons, and brought back several men experienced in this branch to start their manufacture the following year. Although this particular venture did not prove successful, it brought to the Mill River region three men who were active in button manufacture in later years.⁸

Throughout this time Williston had continued to live in Easthampton. When his contract with the Haydens expired in 1847, he purchased their interest in the button business, and removed all operations to Easthampton. There were other button factories operating, and still others were established later, but none were as large as the Williston plant had been. In ten years the firm increased its capital from \$20,000 to \$175,000, and its number of employees from 25 to 275. In 1845 the value of output of the region's button factories was six times what it had been fifteen years before.⁹

⁶ Jones, W. U., *The Button Industry* (London, 1924), 93 ff.

⁷ *Ibid.*

⁸ A. P. Critchlow, John Tornicliff and Joseph Whitehouse.

⁹ The following figures are taken from *Hunt's Merchants' Magazine* (Vol. XIV, February, 1846, p. 156); their original source is unknown and their accuracy perhaps to be questioned, but they are interesting:

"The Haydens, two brothers, commenced the business of making buttons, by hand, at Haydenville, near Northampton, Massachusetts, employ-

THE FIRST COTTON MILLS

Cotton was manufactured in the region long before buttons, but never assumed the importance of the latter in this period. One local history tells of a small cotton mill erected in Leeds in 1808 on the site of an old saw mill.¹⁰ The following year Daniel and David Hayden, uncles of the button manufacturers, with two other men, built a two-story wooden building thirty-two feet square, installed 128 spindles and in 1812 began the manufacture of cotton yarn.¹¹ The Hayden business thrived during the war years, but on the conclusion of peace gradually declined and in 1818 was given up. Two other cotton mills sprung up in 1812 under the protection of the war embargo, only to vanish within four years. These were located on the upper Mill River at Williamsburg. Other attempts at cotton manufacture followed. A company for the manufacture of "cotton, iron and wool" was incorporated in 1823, but was never put into operation;¹² two years later a Williamsburg "woolen, cotton and linen manufactory" was incorporated again with no subsequent history. The records show that small plants were established,¹³ and one or more were con-

ing only two or three hands besides themselves. After a few years they enlarged their establishment, and their business is said to have proceeded and increased as follows:

<i>Year</i>	<i>No. Hands</i>	<i>Capital</i>
1835	25	\$ 20,000
1836	50	30,000
1837	100	50,000
1838	200	100,000

In 1839 they added the business of manufacturing steel pens to that of making buttons, and operations were as follows:

1839	225	125,000
1840	235	130,000
1841	235	130,000
1842	235	130,000
1843	250	145,000
1844	275	175,000

In 1844 the number of buttons manufactured per day was 1,600 gross and the number of pens manufactured per day was 100 gross."

¹⁰ Evarts, Louis H., *History of the Connecticut Valley in Massachusetts* (Philadelphia, 1879), I, 224.

¹¹ *Hampshire Gazette*, July 17, 1860.

¹² *House Executive Document*, No. 308, 311.

¹³ Unpublished manuscripts on local history.

tinuously producing cotton yarn or cloth tape throughout this period.¹⁴

PAPER MANUFACTURE

Paper manufacture was conducted on a small scale. The Butler factory in 1831 was making paper valued at \$9,000 and marketing it, one-sixth in Boston, the rest in Connecticut and New York. The mill was then employing sixteen men and eleven girls, the men earning one dollar a day and the girls thirty-two cents.¹⁵ In 1835 and again in 1843 the mill changed hands,¹⁶ and its operations were expanded. "Fifty girls will find employment at the Paper Mill if application is made soon," read a notice in 1841. From an advertisement seeking a competent woman to take charge we learn that the company established a boarding house for employees.¹⁷ At some time during the period a second small paper factory was established. In 1845 the two plants were making goods valued at about \$60,000 and employing 10 per cent of the region's wage earners.¹⁸

NON-FACTORY INDUSTRIES

Besides these factories, many small and purely local industries flourished during this period. Some of the busiest industries were not factories at all but small mills and workshops, some of them still manned and managed by owner artisans. The growth of population had opened an immediate market for consumption goods of all kinds. The establishment and expansion of factories afforded a market for mill supplies and tools of local manufacture.

¹⁴ The manufacture of silk began late in this period but its story belongs to the next one.

¹⁵ *House Executive Document*, No. 308, I, 308-309.

¹⁶ The same site and water privilege supported paper mills owned by five successive companies until 1889. The Butler mill, 1786-1835; Northampton Paper Mills, 1835-1843; William Clark and Company, 1843-1869; Vernon Brothers and Company, 1869-1886; Northampton Paper Company, 1888-1889. Buildings were then sold to the E. E. Wood Company, manufacturers of cutlery. Mill River water was kept in good condition for paper making; all leases of water rights in the neighborhood contained clauses protecting the mills against pollution of the stream.

¹⁷ *Hampshire Gazette*, September 28, 1841.

¹⁸ In later years the Butler mill was devoted to the manufacture of fine writing paper which was marketed in New York; in 1860 it installed a 25-horse power steam engine for use in time of low-water to supplement the 120-horse power water privilege. (Northampton Directory, 1860).

The whole development was interdependent and cumulative, and released varied productive energies, many of which represented the capitalization of "Yankee ingenuity." So far as the economic livelihood of the people was concerned these industries were not unimportant.

Axes were in great local demand, and a series of small shops, all of them using water power, made axes and edge tools.¹⁹ In 1831 three shops were producing together axes and tools valued at more than eleven thousand dollars; after that production began to decline.²⁰ Other tool shops and several foundries came and went. One firm made machinery for the Shepherd and Bodman woolen factories; another took up the making of carding machines. When the Hayden cotton mill closed its doors in 1818, Joel Hayden bought it from his uncle. With James Congdon as partner he rebuilt the dam, and in 1822 began to manufacture power looms for broadcloth, cassimere, satinet, flannel and cotton weaving. A few years later he and his brother were making castings for several kinds of machinery. One Northampton firm produced kettles, stills, tanners' heaters and other kinds of copper work in the late 1820's; another made brass castings; the Hampshire Plough Company and other foundries manufactured cast iron ploughs. One Northampton partnership was credited with a five-thousand-dollar silver spoon and spectacle business in 1831.²¹

The Mill River was dotted with grist mills, brick yards and stone cutting concerns. Sawmills began to add wood-turning, furniture making and button making. Up to 1845 these saw mills mainly cut lumber for small local wagon and furniture shops. After that they became fewer in number, but larger in size, until the one lumber yard reported for Northampton in 1875 was producing lumber valued at \$100,000 and employing some sixty-five men. Carriages, wagons and sleighs,²² cabinet furniture, broom

¹⁹ *House Executive Document*, No. 308, 306-307.

²⁰ Massachusetts, *Statistical Tables Exhibiting Certain Branches of Industry in Massachusetts for Year Ending April 1, 1837* (Boston, 1838); Massachusetts, *Statistics of Conditions of Production* (1845).

²¹ *House Executive Document*, No. 308, 310-311.

²² One carriage business which had a long, continuous existence on the same site, was begun in Northampton in 1809, and continued to operate until 1884. (Gay, W. R., *Gazetteer of Hampshire County, Massachusetts*, Syracuse, N. Y., 1886, 374).

handles, barrels and other wood products, were made in small shops by master workmen with the aid of journeymen and apprentices, and persisted all through these years, although in diminishing numbers. Carriages and cabinet work are said to have found sales as far away as Charleston, South Carolina, and New Orleans. In 1826 one local artisan was offering to make on order oilcloth carpeting "in imitation of Brussels."²³

An old mill built in 1801 used water power to press flax seed for oil, and continued to operate into the early 1830's. A group of men calling themselves the Massachusetts Hemp Company set up a flax dressing machine in 1829.²⁴ Seed was furnished by the company to farmers on shares or payable in hemp, and hemp or flax was either bought outright or dressed on shares.²⁵ In the first year some four hundred acres were under hemp cultivation in Northampton and still further planting was encouraged.²⁶

A Williamsburg concern of interest for its long life and typical family organization, was that established in 1831 by Ezra, Williston and Sears Thayer. The three brothers bought a privilege on one of the tributaries of the Mill River, and there made cases for clocks, the running parts of which were brought from Connecticut. This firm employed twelve men, and differed from many of the small industries in its active merchandising, for it sent six or eight peddlers through Massachusetts and adjoining states to sell some \$24,000 worth of clocks a year.

The region drew its raw materials from many places. In 1831 (the only year for which sources of raw materials are given comprehensively for all types of products), the region itself or neighboring sections of Hampshire County, were still called on to provide some of the wool, many of the hides and the sumac and bark used in tanning, the rags for the paper mill, and most of the wood used in the button molds, carding machines, clock cases, carriages and furniture; but other parts of New England, the South, the

²³ *Hampshire Gazette*, May 17, 1826.

²⁴ *Ibid.*, April 15, 1829. The Northampton agent was the Daniel Stebbins active in silk raising.

²⁵ A written contract could be entered into whereby first quality hemp would command \$18 a ton, when thoroughly dried and delivered at the machine. (*Hampshire Gazette*, May 20, 1829).

²⁶ *Hampshire Gazette*, November 4, 1829.

Middle West and foreign countries furnished materials. Wool came from the flocks of Vermont, Massachusetts and New York, and in small part from France; silk from France; lasting for buttons from England. There were other foreign materials such as indigo, madder, logwood, olive oil, and castile soap used in all the woolen factories; mahogany for clocks; English tin, Russian and Swedish iron for the small hardware and tinsmiths' shops; Calcutta goat skins and Russian calf for fancy leather products; for axes and castings, Pennsylvania iron and coal.²⁷

Altogether the region was producing in 1831 goods valued at almost five hundred thousand dollars. Woolen goods were credited with nearly two-thirds of the total; buttons and leather goods ranked next to wool.²⁸ By 1845 the total value of output had increased by 85 per cent with four-fifths in factory-made goods—woolen fabrics, buttons, cotton goods and paper. The number of wage-earners employed in the small work shops had diminished to little more than a fifth of all employees by the end of the period.

TRANSPORTATION FACILITIES

Industrial expansion throughout the period up to the 1840's was seriously handicapped by lack of satisfactory transportation facilities. Radical improvements were attempted but they did not come up to expectations.

For the first ten years after its settlement Northampton's only means of communication with other settlements was by horseback or foot. Travelers to Springfield after 1661 used a ferry across the Connecticut at Hadley and made the trip from there on horseback. About 1664 the first road was laid to Windsor, Connecticut, and over this the county taxes, paid in grain, were carted to Hartford and thence shipped to Boston. In 1669, in a petition against import duties laid by the Massachusetts General Court, Northampton stated that the cost of transporting a bushel of wheat to Boston was 1s8d: "One shilling to Windsor, two pence thence to Hartford, and six pence from Hartford to Boston."²⁹ By far the

²⁷ *House Executive Document*, No. 308, 306-313.

²⁸ Table II(a), Appendix. 1831 is the first year for which we have general data on industries.

²⁹ Judd, Sylvester, *History of Hadley* (Springfield, 1905), 75.

greater part of the cost was consumed by the comparatively short land route. In 1692 a highway to the east for wheeled vehicles was proposed but the plan was not considered feasible. As late as 1774 Boston newspapers were brought by carrier, who collected a dollar half-yearly for his services.³⁰ The Connecticut River was not satisfactory for shipping because of the falls at South Hadley several miles below Northampton. While boats to carry freight were put on the river, probably about 1668, the cargo had to be carted from the foot of the falls to or from Northampton. In spite of the cheaper water rates, grain and other freight were frequently carted all the way to Windsor and Hartford.³¹

In 1792 twenty-one business men of Hampshire County, including seven from the Northampton region, were incorporated as the "Proprietors of Locks and Canals on the Connecticut River." A two-and-a-half-mile canal around the South Hadley falls was completed in 1794, under the superintendence of Benjamin Prescott of Northampton, making possible through shipping from Northampton to Hartford. Steam boats could be successfully used only on the levels between falls, so that passengers and freight had to be transferred at the end of each level, but flat boats and rafts moved through the locks without difficulty. For these, uninterrupted trips were possible from Dalton, New Hampshire, to Hartford, a distance of about two hundred miles.³²

Roads were also improved. In 1793 a line of stages was established between Boston and Northampton. Nathan Patch and Company offered to carry passengers from Boston to Worcester for nine shillings, and from Worcester to Northampton at the rate of three pence a mile, "28 pounds baggage gratis, 200 pounds the same as a passenger."³³ It was a two-day journey; stages left Boston and Northampton on Wednesday and Saturday mornings to arrive in Worcester the evening of the same day, and left Worcester on Thursdays and Mondays for the terminals. A few months later³⁴ saw the line extended to Albany, and in May,

³⁰ Weeden, William B., *op. cit.*, II, 738.

³¹ Trumbull, J. R., *op. cit.*, II, 198.

³² Gay, W. B., *op. cit.*, 92 ff.

³³ *Hampshire Gazette*, July 24, 1793.

³⁴ Trumbull, J. R., *op. cit.*, II, 554.

1794,³⁵ a "New Line of stages between Boston and Albany" was opened by Pease, Hunt and Company who charged three cents a mile, fourteen pounds of baggage gratis.

Concern for adequate transport routes from the north, the lack of which was felt to be a handicap to local trade, caused Levi Shepherd and thirty-nine other citizens of Northampton in 1802 to petition the legislature at Boston for permission to incorporate as a turnpike company to construct a road to Deerfield. The unimproved road was said to be "in many parts on very sandy land; and . . . on some part of it water frequently is so deep as to render it utterly impassable, whereby strangers are not only greatly delayed and incommoded, but are often much exposed."³⁶ An Act passed by the Massachusetts legislature on March 2, 1803, incorporated a group of Northampton business men as the "Proprietors of the Northampton Bridge." They were to erect a bridge, at least twenty-eight feet wide, between Northampton and Hadley, and were permitted to charge toll for the ensuing seventy years.³⁷ Two years later, the Williamsburg and Windsor Turnpike Corporation was chartered, and toll-rates were established with certain specified exemptions:³⁸ "Persons passing to and from public worship, to or from common labor on his farm, to or from any grist mill, or on common military duty." In 1808 an Act of the legislature created the Providence and Northampton Turnpike Corporation to "lay out and keep in good repair a turnpike road, from a point in the Providence road, in a line of the State of Connecticut, to the center of the town of Sturbridge; thence in the best direction to Brimfield and Palmer meeting houses; then in the most convenient route to South Hadley; and

³⁵ *Hampshire Gazette*, June 15, 1794.

³⁶ *Ibid.*, April 14, 1802.

³⁷ "For each foot passenger, 3 cents; for each horse and rider, 7 cents; for each horse and chaise, chair, or sulkey, 16 cents; for each coach, phaeton or other four-wheeled carriage for passengers, 33 cents, for curricule, 25 cents; for sleigh drawn by one horse, 10 cents; by more than one horse, 12½ cents; cart or carriage of burden drawn by one beast, 10 cents; by two beasts, 16 cents; more than two beasts, 20 cents; each horse without rider and neat cattle, 3 cents each; sheep and swine, 1 cent each." *Massachusetts, Private and Special Statutes*, III, 132.

³⁸ *Massachusetts, Private and Special Statutes*, III, 572.

thence in the best direction to Northampton,"³⁹ which must have been determined by the Hadley bridge opened in 1806.

Overland trade with Boston was well established by 1817. John and Samuel Wright at that time advertised their "Baggage Wagon," which they were to drive "as usual" from Northampton to Boston with all goods entrusted to them.⁴⁰ In 1822 the *Hampshire Gazette* gave special commendation to the four sleighs which had left Northampton on a Monday morning laden with pork, and had returned on Friday afternoon with Boston merchandise. Even with these improvements in roads, the bulk of freight was routed through Hartford on the Connecticut River, and thence by boat to other points.

In the 1820's there began agitation further to extend the means of transportation by building a canal to connect Northampton with New Haven. The *Hampshire Gazette* joined vigorously in the campaign.

A large proportion of the canal from Southwick to Northampton will not cost more per mile than some of our turnpikes; and yet each mile of canal is worth to the public twenty times more than a mile of turnpike. This is shown by the fact that two men, one boy and two horses, with a canal boat can transport to and from market, more produce each day, than forty men with eighty horses in waggons, on good turnpikes, can do in the same term of time. The expense of canal transportation is not more than half the freight in coasting transportation.⁴¹

To enlist smaller business and farmer interest, special appeals were made.

Suppose—staves, heading and hoop-poles; posts and rails; ship and pine timber, with lumber of all kinds; potatoes, apples, cider and all other articles which are too heavy for long land transportation, should by means of the proposed canal, be really brought within five to eight miles of a good market;—and thus those articles which hitherto have been of little value (except for our own families' use) would be made as valuable as though their owners lived on the seaboard.—Canal navigation is as much better than that of the river as the river is better than that of a good turnpike.⁴²

³⁹ *Massachusetts, Private and Special Statutes*, IV, 176.

⁴⁰ *Hampshire Gazette*, January 15, 1817.

⁴¹ *Ibid.*, April 10, 1822.

⁴² *Ibid.*, April 17, 1822.

Mill River business men hoped to induce entrepreneurs to select Northampton as the site of their enterprises. They argued that since the canal was to be run through the town on an elevation, they could harness it to mill wheels, by tapping it at strategic points and allowing the water to fall ten to forty feet.

It ought never to be lost sight of that water can be taken out of the canal in a hundred places and conducted in various directions to the spot where it can be let off to produce the greater power, and all this without expense and risk of a single dam.⁴³

The Farmington section of the canal, chartered in Connecticut in 1822, ran from New Haven to Southwick; its continuation, the Hampshire and Hampden Canal, chartered in Massachusetts in 1823, connected Southwick with Northampton. We are told that Northampton merchants and manufacturers invested heavily in the project. It was ill-fated from the start. Although it was in intermittent operation from 1835 to 1847, it was never profitable, and brought only losses to those who invested in it.

A canal had also been considered that was to run from Boston to the Connecticut River, and from the Connecticut to the Hudson, but fortunately for would-be investors, interest in railroads came in time to prevent the attempt. A railroad was planned in 1827; in 1835 the line to Worcester was opened, and two years later it reached Springfield. The Western railroad to the Hudson was completed in 1841. For various reasons Northampton was slow to promote a branch line to Springfield, only seventeen miles distant, and for several years stages continued to connect these two points. Finally in 1845 the Connecticut River railroad was opened, following the river north and south and passing through Northampton.⁴⁴ From this time Mill River industries had ready access to markets.

INDUSTRY BEFORE 1845

In looking back over this early period we see that in addition to numerous small mills and handicraft industries carried over

⁴³ *Ibid.*, May 3, 1826.

⁴⁴ A full account of the rise of early railroads and of transportation conditions prior to the railroads in the Connecticut Valley, will be given in a forthcoming study on the subject by Thelma Kistler, in the Council of Industrial Studies series.

from the colonial years, the Mill River region had acquired, since 1800, several factories of consequence manufacturing woolen goods, buttons and cotton. There were smaller factories making paper and metal products, and silk manufacture had its beginning before the period closed. Industrial activity in both pre-factory and factory forms went on continuously throughout these years.

Most of the lesser industries made their goods for a local market, or at best sent them out, as did the clock manufacturer, in the carts of peddlers who got them at the factory door. There were instances of the products of handicraftsmen—carriages, for example,—going to distant points, but these were few. Side by side with these producers for local markets, were factories like the Shepherd and Bodman woolen firms, and the Hayden-Williston button works, whose goods were shipped directly to the main trade centers of the country.

While the water power furnished by the Mill River was far too limited to attract exploitation by large outside interests, as did the falls at South Hadley and Chicopee a few miles away, it was nonetheless more than sufficient for the expansion of locally-run enterprise; not until the late 1850's do we find Mill River factories introducing steam. The sources of capital were varied. In the case of the largest woolen company, which represented nearly two-thirds of the region's total value of output in the 1830's, its original capital of \$100,000 came from the wealth accumulated by a colonial merchant-financier of Northampton. The paper mill was purchased and run for some years by a merchant. No doubt small amounts of local commercial capital went into other enterprises. Other small amounts of capital may have been brought in by men who settled in the region to establish businesses. But most of the factories seem to have started as small concerns that were gradually expanded from their own profits. The Haydens had a number of lesser interests before the button business became so prosperous. The putting-out system was apparently the basis of very considerable capital accumulation in the case of Samuel Williston, who had a thousand scattered women producing

covered buttons for him in their homes before the Haydens' button machine was built.

The labor supply may have been a problem when the woolen factory first began to expand, but the region apparently had a very substantial number of wool craftsmen, so active had been its woolen trade throughout the colonial period, and the Shepherds, like other larger manufacturers, imported some workmen experienced in the use of foreign machinery. These and the native craftsmen provided the nucleus, and other native workers were soon taught machine processes. Button manufacture, in the putting-out stage, presented virtually no problem of training workers; even after the establishment of factory production, we learn of no difficulties in this regard, presumably because the processes were fairly simple and there was an abundant labor supply. Every type of business organization could be found before the period ended, from the most primitive to the corporate form, though the simpler forms predominated, as we should expect under the conditions we have described. Partnerships were common, the joint stock company less so. At this time there was no real absentee control.

Transportation facilities did not keep pace with progress in other directions, though not because there were no attempts at improvement. Practically every scheme for improving and expanding the country's arteries of trade found its echo on the Mill River. We have a locks and canal company formed (to improve transportation on the Connecticut River) before the close of the eighteenth century, stage coach lines, and finally soon after 1800, a turnpike company and a company authorized to erect a toll bridge across the Connecticut. The region's business growth is thus yet more closely tied up with the fortunes of its leading financiers who were able to invest in these enterprises. Then with the growth of the canal craze throughout the East, in the 1820's we find agitation from this same business group for canal development here also. The local press furthers the venture, appeals are made to the petty business men and farmers to contribute their savings, extravagant hopes are held out for the sale of real estate to outside mill owners by the promise of added water

power, the venture is made, and the public loses. While some transportation improvement resulted, facilities remained behind the times. Not until the 1840's when railroad connections were finally established was there relatively cheap and easy access to markets. Naturally larger centers with better facilities were meantime pushing ahead.

Except for the backwardness of transportation, the situation was favorable for the region slowly but steadily to develop into a manufacturing center. Although pre-factory and factory production continued for many years side by side, the factories were gradually absorbing more and more of the region's working force and producing an increasingly large share of the total output. Throughout this period the industrial revolution was in process of transforming this small New England town.

CHAPTER V

THE ESTABLISHMENT OF THE SILK INDUSTRY

The region's silk industry was very unlike woolen or button or cotton manufacture in origin and subsequent development. Established during the silk culture craze of the 1830's, it had a few years of rapid growth and then a decline, before it finally took hold as a permanent industry in the 1850's. Both the culture and manufacture of silk in this first hot-house period owed their development to initiative and capital from the outside.

By 1830 interest in silk culture had spread to numbers of towns in New England and elsewhere, Northampton among them.¹ Many items of news and discussion were appearing in the *Gazette* on the culture of mulberry trees and the production of silk. The raising of silk by individuals was encouraged. The *Hampshire Gazette* announced with pride on October 29, 1828, that Northampton's Mrs. Charles Starkweather had been awarded a premium by the Hampshire, Hampden and Franklin Agricultural Society for a sewing silk she had made, "Superior in thread and coloring to the imported article!" A year later, the paper declared enthusiastically, Mrs. Starkweather's raw silk is "the most beautiful specimen of Raw Silk we have ever seen."² In succeeding years general interest grew, silk societies were formed in many places, numerous articles and pamphlets on silk culture were given wide circulation. Pennsylvania, New Jersey, Maine and Massachusetts, offered bounties on cocoons and raw silk.

It was argued (significantly enough for that period, nearly a generation after Hamilton's report on manufactures), that most of the work could be carried on by women in their spare time or by children who would otherwise remain idle. Many felt that sums sent abroad in payment for imported silks, should be re-

¹ Silk culture had been fostered in America as early as 1622, and intermittent encouragement given by various states throughout the eighteenth century, but it was in the nineteenth century that it became important. In 1826 Congress issued a manual on silk culture, one sign of the growing interest.

² *Hampshire Gazette*, October 29, 1828; November 4, 1829.

tained within the country.³ There was high hope that silk would become one of the country's leading industries. In 1836 the Governor of Massachusetts declared: "There is good grounds for the opinion that the manufacture of silk will become one of the greatest interests in Massachusetts. If anticipations are warranted, silk will become the staple product of the country, both for consumption and exportation, second to no other branch of industry and source of wealth." This was quoted in Northampton's *Hampshire Gazette*.⁴

Factory production of silk in the Connecticut Valley had begun as early as 1829. The Mansfield Silk Company in Connecticut, after several years of experimentation with various types of machinery, began to manufacture. Its profit in 1834 of over \$60,000 was cited in the *Hampshire Gazette* as an example of what could be done. Although the company failed ten years later, it is said to have been the first enterprise in the country to make the manufacture of silk "practically successful."⁵ Some of the men important in Northampton's industry came from the neighborhood of Mansfield.

The man who first established the silk industry in Northampton was Samuel Whitmarsh, an enthusiastic convert to silk culture, who in 1829 came to Northampton from Boston with the purpose of introducing silk raising and manufacturing on a considerable scale.⁶ He believed he was working for what would be a permanent silk culture in the region, and his efforts were keyed to that belief. Not only did he plant thousands of mulberry trees, but he encouraged others to follow his example. He ap-

³ An illustration is taken from William Kenrick, *The American Silk Growers' Guide*, Boston, 1835, p. 15: "Imported silks in the year ending September 30, 1830, were \$10,000,000, mostly from Italy and France. Those resources, the millions we now expend annually for silks, the products of foreign industry and of foreign policy; those vast sums should be preserved to our own citizens, and a great and general interest encouraged—an interest so adapted as an occupation for the feeble, and a resource for the poor, and to awaken to habits of industry and of virtue in the rising generation."

⁴ *Hampshire Gazette*, January 20, 1836.

⁵ Brockett, L. P., *The Silk Industry in America* (Washington, 1876), 52.

⁶ Similarly a few years before Shepherd had become involved in a costly venture, and at a time when interest in trying to improve the domestic supply of wool by the importation of new breeds of sheep was at fever heat.

parently put everything he owned into the venture, in the end paying dearly for doing so when the attempt failed. First Whitmarsh promoted the white mulberry, and then the Chinese or "morus multicaulis." He acted as agent for setting white mulberry seed and slips of the multicaulis, and offered to pay cash for cocoons, raw silk, and mulberry leaves, the latter at one cent a pound in quantity.⁷ In the autumn of 1835 he went to France and Italy to learn more of the European methods of silk culture and manufacture, and sent back thousands of young mulberry trees and packets of seeds. A packet, containing sufficient seeds for three or four thousands trees, he sold at five dollars;⁸ the multicaulis trees, three feet high and taller, at \$30 to \$35 per hundred.⁹

Others beside Whitmarsh were very active, among them Dr. Daniel Stebbins. All through the thirties he bought and sold mulberry trees, raised silkworms, produced raw silk, wrote articles on silk culture, and fostered a silk society—"friends of the silk culture"—which held monthly meetings to "impart and obtain information on this subject."¹⁰ He even tried in 1844 to produce a fine grade of writing paper from the bark and leaves of the mulberry.

The "morus multicaulis," although it produced an inferior grade of silk, gained in favor over the hardier white mulberry because luxuriant leaves fit for feeding silkworms could be obtained from trees of a single season's growth. The demand became enormous. A get-rich-quick fever swept through New England, New York, the Middle Atlantic states and even into the South. Many bought and sold with the hope of making huge fortunes through purely speculative transactions. Thousands of dollars worth of trees were sold for future delivery.¹¹ The excitement reached its peak in 1839 when the bubble, blown to enormous proportions, burst, and thrifty and greedy alike were caught in the ensuing panic. Prices dropped suddenly, and the multicaulis trees could not be sold even at ten cents a hundred.

⁷ *Hampshire Gazette*, June 24, 1835; July 22, 1835.

⁸ *Ibid.*, May 4, 1836.

⁹ *Ibid.*, May 11, 1836.

¹⁰ *Ibid.*, March 18, 1840.

¹¹ *Hunt's Merchants' Magazine*, II, January, 1840, 61.

In spite of this disaster the interest in silk growing did not for a time wholly subside. In 1841 a silk convention consisting of delegates from various towns in New England, was held in Northampton, and expressed the belief that the United States might yet become a great silk producing nation.¹² The Hampshire, Franklin and Hampden Agricultural Society continued to exhibit mulberry trees and cocoons, raised by local growers. In 1842 in Connecticut, two trees of a single season's growth were sold at auction for \$106 and \$100 respectively.¹³ By 1844, however, the whole idea of silk culture had sunk more or less into a disfavor from which it made only feeble and intermittent efforts to rise.

Silk culture was doomed but not silk manufacture. Here, too, Samuel Whitmarsh took the lead, launching a company in the spring of 1836 in the midst of the "*morus multicaulis*" boom. Some twenty-two New York subscribers contributed capital for his Northampton Silk Company. The corporation began operations with a capital of \$100,000. To those who witnessed its start, this company seemed a venture of almost unlimited promise, since it proposed not only to manufacture silk, but to produce its own raw material. To this end it planted in the first season one hundred thousand mulberry trees, expecting to increase them to half a million the second year.¹⁴ A year later the *National Intelligencer* declared, this is "the most extensive and well-regulated silk company in the Union," which would in two years be manufacturing \$100,000 worth of silk fabrics annually from raw material, created for the most part "from worms on the spot."¹⁵ Whitmarsh himself, as late as 1839 (soon after the silk culture bubble burst), looked to a time when factories would arise in every part of the country wholly dependent on a domestic silk supply.¹⁶

¹² *Hampshire Gazette*, November 16, 1841.

¹³ Lilly, A. T., *The Silk Industry of the United States from 1766 to 1874* (Boston, 1875), 9.

¹⁴ *Hampshire Gazette*, March 1, 1837.

¹⁵ *Ibid.*, quoted in, March 1, 1837.

¹⁶ Whitmarsh, Samuel, *Eight Years' Experience and Observation in the Culture of the Mulberry Trees and in the Care of the Silk Worm* (Northampton, Mass., 1839), 118.

Not only did the company carry on silk culture, but it advertised its willingness to contract for cocoons up to 10,000 bushels, delivered in good condition, the price to vary according to quality,¹⁷ from \$2.50 to \$5 per bushel. Vermont and New Hampshire cultivators were advised to ship their cocoons by the River boats. The company also imported cocoons, and raw silk in considerable quantity from France.¹⁸ From France also came some of the machines for reeling and weaving. The reels were moved by steam, not by water.¹⁹ The first successful power loom for the manufacture of silk was installed in the Valentine factory of Providence in 1834, and early in its career, the Northampton Silk Company adopted it for its ribbon manufacture. According to Whitmarsh, the factory had "power looms for ribbons, including those now in operation and those in the hands of the machinist, sufficient to turn off 4,000 yards of ribbon daily, of widths varying from one-half inch wide to four inches—besides machinery for sewing silk and broads."²⁰

The company secured the services of one of the two men who were the first in this country to make a business of silk dyeing and to improve its processes. Edward Valentine, who had come from London, England, in 1838, first went to Connecticut, but in a year moved on to Northampton where he continued his business of silk dyeing until his death in 1851.²¹ At first the company manufactured only sewing silk and ribbon. The *Gazette* of February 1, 1837, carried a notice that sewing silk was "used by the tailors in town and pronounced by them to be a very excellent article superior to the majority of Italian silk." Its output the first year, ending April 1, 1837, was valued at \$40,000; it had sixty workers in its employ.²² After this promising start the company ran into trouble. In 1839 Samuel Whitmarsh with-

¹⁷ *Hampshire Gazette*, June 1, 1836.

¹⁸ *Ibid.*, June 29, 1836.

¹⁹ Kendrick, William, *op. cit.*

²⁰ Whitmarsh, Samuel, *op. cit.*, 118.

²¹ These two men, when they came to Gurleyville, Connecticut, from England, soon secured the patronage of most of the silk manufacturers in that vicinity. It is said that in 1844 Ward Cheney learned the main points of silk dyeing from Valentine of Northampton. (Manchester, N. H., *Story of Silk and Cheney Silks*, New York, 1916).

²² Massachusetts, *Statistics of Industry*, 1837.

drew.²³ The management of the business was turned over to Joseph Conant, a native of Mansfield, Connecticut, who had had ten years' experience in the silk business when he was brought to Northampton by Whitmarsh. Although Conant leased the plant and tried to run it, he could make no headway, and on April 1, 1841, it was sold for \$22,250 to the leaders of the newly organized Northampton Association for Education and Industry.²⁴ At the time of its sale the property included about four acres of land, a brick factory, a water privilege with a twenty-foot fall, a saw and planing mill, machinery sufficient to manufacture one hundred and fifty pounds of sewing silk per week, five frame dwellings, and three to four thousand mulberry trees.²⁵

Northampton's first silk company arose in the midst of the silk craze, and the proprietors invested in mulberry trees at prices which while not exorbitant in their eyes at the time, brought great losses when values were suddenly deflated. It had, therefore, made large initial expenditures. Although most of the raw silk used by the company was imported, it was spending a great deal of money on cocoons, reels and labor in the effort to produce raw silk. American labor, the entrepreneurs discovered, was high priced as compared with European, and particularly Asiatic labor, involving a much heavier labor cost. It was felt that only when the silk worms could be tended in the spare hours of farm wives or by the labor of the infirm or very young, could wages be kept sufficiently low to yield a good profit. But such work, it was found, produced a poor quality of raw silk, and only a fraction of the total amount needed. Moreover, a ten per cent

²³ Of Whitmarsh's later career, we learn that he attempted several businesses. Upon withdrawing from the silk company he had purchased another factory in Northampton with a view to continuing silk making. Soon, however, he removed to Jamaica to attempt the manufacture and culture of silk there; the government was making attractive offers to encourage it. At its start this venture succeeded; so much so, that Mr Whitmarsh was able to return to Northampton and pay large debts he had incurred in the first venture. But then other calamities befell, and apparently he gave up the silk industry altogether. He settled in Boston and there attempted several other manufacturing projects, none of them with success. (Cf. Sheffield, C. A., *The History of Florence, Massachusetts*, Florence, Mass., 1895, 62).

²⁴ *Hampshire Gazette*, April 14, 1841.

²⁵ *Ibid.*, February 17, 1841.

duty on all raw silk coming from east of the Cape of Good Hope put American manufacturers at a disadvantage compared with Europeans who paid no such duty, and who were permitted by the French indemnity treaty to flood American markets with duty-free goods. Sewing silk alone bore an import duty and this apparently did not come up to expectations as a protective device. Other joint stock companies, created about the same time as the Northampton company, also failed, and by 1840 three of the largest had ceased to exist.²⁶ The few firms that managed to keep going gave up all connections with silk culture. Some New England silk manufacturers, Clark tells us, apparently not so enamored of American silk culture, took the far-reaching step about 1840 of sending agents with reels to China, where native labor was taught how to prepare silk for American mills. "Operations begun on the banks of the Yang-tse-kiang were completed on the banks of the Connecticut."²⁷

THE FLORENCE COMMUNITY AND SILK MANUFACTURE

The old Northampton Silk Company was purchased by a group of men who came to Northampton in the fall of 1841 to found a co-operative colony, the Northampton Association of Education and Industry, or as it was usually called, the Florence Community.²⁸ This was one of many such associations formed in the nineteenth century. Stirred by the misery and inequalities so evident everywhere under the emerging factory system, the founders sought to find a way out of the economic order surrounding them

²⁶ *Hunt's Merchants' Magazine*, II, January, 1840, p. 65. Cf. also Clark, Victor S., *History of Manufactures in the United States* (New York, 1929 ed.), I, 575. Value of silk made in Massachusetts from 1836 to October, 1842, *Hunt's Merchants' Magazine*, VIII, 481.

1836: \$ 71.37.

1837: 198.00.

1838: 350.00.

1839: 434.62.

1840: 1,233.58.

1841: 2,111.42.

1842: 3,351.91.

²⁷ Clark, Victor S., *op. cit.*, I, 580.

²⁸ For this account of the Northampton Association, we are indebted in part to C. A. Sheffield, *History of Florence, Massachusetts*, especially Chapters VIII-IX. Also to *The New England Magazine*, XII, March, 1895, Rumsey, Olive, "The Northampton Association of Education and Industry."

by establishing settlements, some co-operative in form, others, such as the religious societies, sharing all goods in common. The non-religious societies were usually Fourieristic or Owenite in type, the most famous of them being Brook Farm.²⁹ The Northampton Association's form of organization distinguished it from many of the other associations. It was not extreme in any way. It was a co-operative colony emphasizing tolerance in religious attitudes and equitable economic and social relationships. On the other hand, its method of paying labor was frankly according to needs, not output.

The founders of the Community were men of varied experience. Several were business men; some of them later became leading business and civic figures in the region. Samuel L. Hill was one of these. He was manager of a cotton factory in Wilimantic, Connecticut, and an enthusiastic supporter of several reform movements. Joseph Conant, then owner of the silk mill property at Northampton was a relative of Hill's by marriage. No doubt it was through Conant that Hill and his associates learned of the group of dwellings and factories, with water privilege and land in Florence available at a low figure. Another successful business man in the original association was George W. Benson, from Brooklyn, Connecticut, long a worker in the anti-slavery movement. He was especially close to the main current of reform in his day, for his brother-in-law was William Lloyd Garrison. David March, another founder, had been a member of Brook Farm; when he came to Florence he was teacher in a girls' school in Cambridge. The secretary and educational director was William Adam, a native of Edinburgh, who had once been a missionary to India, and later a professor of Oriental languages at Harvard. The members of the association were recruited

²⁹ It is of interest to note that many years later Northampton came into remote touch with another of these settlements of the 1840's. The Oneida Community of New York State, was one of the best known of the religious groups. When by vote of its members, it was dissolved in 1881, the community had a thriving cutlery business. With the dissolution of the community, the property was incorporated and many former members became shareholders in the company. The silver corporation prospered (Community Plate). It was this company, handed down from the old Oneida Community, that purchased the Rogers Silver plant of Northampton in 1929.

from many states; altogether as many as two hundred persons joined, though due to withdrawals, the total number at any one time was not so large.

The organizers set forth in a circular the cardinal principles on which community life was to be based.

a. Productive labor is the duty of every human being, and every laborer has the exclusive right of enjoying and disposing of the fruits of his labor.

b. It is the right of every human being to express the dictates of his conscience on religious and all other subjects, and to worship God under any form agreeable to his convictions of duty.

c. The rights of all are equal, without distinction of sex, color or condition, sect or religion.

d. The family is sacred by the laws of nature and the will of God, and no relationships shall be formed which are inconsistent with this, the root of all human excellence and happiness.

e. The combination of individuals or families is an evil or a good according to the object to which it is directed. It is good to combine to counteract within a greater or less sphere the causes which have produced ignorance and vice, oppression and crime, bigotry, fanaticism and intolerance. It is good to co-operate for the purpose of giving labor its true dignity and of making a wise division of the department of industry.

Due no doubt to the men of business among its founders, the affairs of the society were organized somewhat elaborately. There were two distinct bodies, a stock company and an industrial association; each had its separate meetings and accounts, although the same persons were members. The capital of the stock company was to be \$100,000 in shares of \$100, of which three-fifths was to be paid in. Every share entitled its holder to one vote, provided no one person had more than ten votes. Should a person without capital be considered a desirable member of the Community, he could subscribe for stock and pay for it from the proceeds of his labor. Interest was six per cent, but was not payable for four years.

Some of the members evidently were business men who sought in the community primarily a sound place for profitable investment. Were this ready to be had, they were willing to renounce some of the competitive practices current in the business world of the day. When they were finally convinced that business suc-

cess could be had only by functioning in that larger world, they decided that they must adapt themselves to it. As early as 1842, three of the members most interested in the silk department, Joseph Conant, Earle Swift, and Orwell Chaffee, left the Community to set up a silk mill along the usual capitalist lines at a nearby water privilege in Florence. The Community's secretary said of them: "They are men of good private character as the world goes, but their object in joining us appears to have been from the first pecuniary advantage, not moral improvement or social usefulness."³⁰

Meanwhile the Community started off auspiciously. The industrial association by vote established various departments of industry, a member being free to devote himself to one or more departments. The directors of the several departments, in consultation with the officers of the association, fixed the rate of remuneration—and here no discrimination according to sex was allowed,—bought all supplies, and sold the articles manufactured or produced. Every member was to live on Community land and secure his articles of consumption at cost through the central purchasing agency. The Community bought and sold in the common market, but within its organization, it functioned as a strictly co-operative association.

One of the first decisions of the Community was to shorten the working day from the customary twelve hours to eleven. It also decided to pay wages, not according to work performed, but according to the age and therefore, presumably, the need of the recipient. At the end of the first year, the following scale was adopted: under twelve years of age—one cent per hour; between twelve and thirteen years, three cents; between sixteen and twenty years, four and a half cents; over twenty years, six cents. Allowances were then made for food and clothing, again according to age.³¹

Of the various departments organized, silk was the most important. The association had unfortunately taken over Whit-

³⁰ Sheffield, C. A., *op. cit.*, 85.

³¹ *The New England Magazine*, *op. cit.*, "The Northampton Association Education and Industry."

marsh's mulberry trees with the purchase of his property, and fostered once more the raising of silk worms. Sewing silk and twist were manufactured. The first six months of 1843 had shown a profit of \$105.82, but by 1845 this department found itself in a hopeless condition. The director of the silk department blamed a deficient supply of raw material plus occasional lots of unsuitable silk. Once again silk growing had fallen far short of all estimates and hopes.

The debt of the Community remained at nearly \$40,000 with no prospect of any new stock being taken up; criticisms began to be leveled at the directors of various departments in regard to their methods of conducting business; the Community's chief means of social control, "mutual criticism," had resulted, so some reported, in a good deal of social friction.³² The association had labored under a debt from the outset, for only \$20,000 had ever been subscribed and more had had to be borrowed at the beginning to conduct the business. Community life was not all clear-sailing in other respects. We are told that despite general agreement on the need for reform there was much lack of agreement on the subject of methods. When the silk industry proved a disappointment and dissatisfied members withdrew, matters became worse. In September, 1846, it was generally agreed among the survivors that the Community should disband.³³

The transition to ordinary business methods was easy; the two organizations of associations were united and shrunk to a small company under the management of one of the Community

³² Free thought and free speech were the creed in community life; by the method of "mutual criticism" the members hoped to iron out difficulties and maintain community spirit. The method of "mutual criticism" was not unique with this colony. Nor have we evidence as to how essential it was felt to be for the carrying on of community life. Whether here it was practiced according to a clearly defined technique, we do not know for we can find nothing describing it beyond vague reminiscences. In at least one of the colonies of the period, the Oneida Community in New York State, the practice of "mutual criticism" was a basic feature, utilized for years according to a carefully prescribed formula. It is described fully by the leader of that community, J. H. Noyes, *History of American Socialisms* (Philadelphia, 1870).

³³ The association was dissolved on November 7, 1846. Beyond these immediate difficulties, failure lay in causes common to all such ventures of the time. Only certain of the associations which were bound together by powerful religious ties seemed able to continue over a long period of year

leaders. Samuel Hill assumed all debts on condition that he be left undisturbed to work out the problem in his own way. The silk manufacturing firm he established later became the Nonotuck Silk Company. With the Community's dissolution, the shorter working day, equal pay for men and women, wage payment according to need, were all left behind, and Florence became a village whose manufacturing practices were those of the New England of that day.

For our account the Northampton Association is of interest because it kept the silk industry going, even though weakly. It left behind when it disbanded, buildings and machinery in working order and men experienced in the manufacture of silk. Besides experienced workers, there were entrepreneurs who were able to take over the industry when the Association gave it up, business men who had for a time been Community members, but who were prepared to return to the more familiar ways of the business world. Beside this, the Community certainly left in its wake some remnants of its old benevolent interest in reform. While there was no attempt to depart from the usual business practices in the conduct of industry, Florence differed somewhat from other industrial centers in its welfare features. An exceptional amount of civic pride came to distinguish the community, and some of the Florence business men showed very broad civic interests. This was particularly true of the business men who had been members of the Florence Community.

The Amana Community in Iowa, for example, which was organized in 1843, lasted almost a hundred years, giving up its communal features only a few years ago. There still remain a few Shaker settlements. Others of these religious communities continued to operate as much as forty or fifty years. Even most of the religious groups finally succumbed to the difficulties of trying in isolation to stand against the general competitive social order which pressed in upon them from all sides.

CHAPTER VI

LOCAL ENTERPRISE IN THE EXPANSION OF INDUSTRY

When Samuel L. Hill took over the property of the Florence Community, he sold most of the land to persons willing to settle on homesteads, reserving just enough ground, in addition to the water privilege and factory buildings, to enable him to carry on the manufacture of sewing silk. The time came when he needed further capital, and for this he turned to Judge Samuel L. Hinckley, a prominent Northampton man, who joined Hill as a silent partner. In 1851 the business was still small¹ but was growing. According to Clark, it was the invention of machine twist that revived the silk industry in Northampton.² This was a silk twist adapted for use in the newly invented sewing-machine. (It is reported that the first acceptable sewing-machine twist to be spooled was manufactured in the early 1850's by a Northampton concern and sent to the recently formed Singer Sewing Machine Company.) The large new market it created for silk goods was made the most of by Northampton's young industry. The Hill and Hinckley firm, which in 1855 had admitted several local men to partnership, was incorporated in 1866 as the Nonotuck Silk Company.

THE NONOTUCK SILK COMPANY

The Company enjoyed a phenomenal expansion in the years following its incorporation, which coincided with the post-Civil War boom. The silk industry flourished everywhere, especially here.³ Large profits were earned and high dividends were paid.

¹ *Hampshire Gazette*, August 5, 1851.

² Clark, Victor S., *History of Manufactures in the United States* (New York, 1929 ed.), I, 576.

³ Between 1870 and 1890 silk the nation over was said to have made greater progress than any other textile. (Clark, Victor S., *op. cit.*, III, 449.) Of the total quantity of silk goods consumed in the United States, the part made domestically increased from 13 per cent in 1860 to 38 per cent in 1880 and to 77 per cent in 1900. (Bogart, Ernest L., *An Economic History of the United States*, New York, 1927, p. 382).

Even in the depression year of 1873, \$62.50 was paid on each share. The same dividends were also paid out from 1875 to 1877; they were \$40 in 1879, and \$75 in 1880. From 1881 to 1893 they ranged from 10 per cent to 20 per cent annually.⁴ When the treasurer, A. T. Lilly, retired from the company in 1887, he expressed his pleasure in "being able to say that at no period since the company was incorporated have they enjoyed the financial strength which they do at the present time."⁵ The men who were fortunate enough to come into the ownership of this business early in its rise made ample personal fortunes.

The company was enterprising in its methods. Sewing silk had been made from the first, but with the expansion of output and changes in style went the addition of many varieties of thread and of other silk products. Well before 1895 the Nonotuck Silk Company with its trade name "Corticelli," was known throughout the United States for its spool silk, machine twist, crochet, knitting, lace and filo silk, Persian and Roman floss, rope, embroidery and etching silk, buttonhole twist, and many other products.⁶

Excursions were made into other fields at this time. The company has claimed to have been the first in the United States to manufacture silk hosiery and silk underwear. Knitting machines were brought from England in 1885, and though exceptionally clumsy, remained in use for several years.⁷ By using both hands and both feet, the operator managed to produce two stockings simultaneously, but such a process was far too laborious and expensive for the stocking to be other than a luxury and its manufacture was abandoned. At that time woollen stockings were the general wear and the knitting of them by hand still a widespread accomplishment. The manufacture of silk hosiery was not again attempted by the Nonotuck Company until 1920.

A more successful venture was the manufacture of spun silk, begun in the eighties and continued to 1930. Damaged cocoons,

⁴ Nonotuck Silk Company, Minutes of Directors' Meetings.

⁵ *Ibid.*

⁶ *Silk, Its Origin, Culture and Manufacture*, by the Nonotuck Silk Company.

⁷ Interview with a foreman of the company.

the sweepings from the floors and the waste of raw silk were processed and spun like cotton thread. The idea had been brought from Switzerland and proved a means of turning to profit what would otherwise have been purely waste material.

In addition to its manufacturing plants at Florence, Leeds, and after 1884, Haydenville, the company maintained a saw mill where lumber was cut both for its own use and for sale, a planing mill where shipping boxes were made, and a spool shop.⁸

Prior to the middle seventies, the company's products had been shipped to New York and Boston, but soon thereafter distributive agencies were established also in Baltimore, Philadelphia, Cincinnati, Chicago, St. Louis and San Francisco. Mention is made of a foreign branch in 1888.⁹ For a few years around 1890, spool silk was sent to France and South America, but exports were interrupted about 1893 by tariffs.¹⁰ The Nonotuck early explored the utility of advertising. Beginning in 1887, one per cent of sales of each branch office for the previous year was allotted for this purpose.¹¹

The next stage in the company's development was the establishment of a branch plant in Canada. By vote of the directors in the late eighties the Nonotuck purchased from Ira Dimock, one of the original partners of the company, the real estate, buildings and machinery then used by him for the manufacture of sewing silk in St. Johns, Quebec. The business was conducted under the name of the Corticelli Silk Company, Ltd., and was managed by the directors of the Nonotuck through a resident agent. This Canadian branch was operated until 1911.¹² The Nonotuck also began negotiations for a Mexican branch, but apparently the plan was never carried through.¹³

⁸ Gay, W. B., *op. cit.*, 370.

⁹ Nonotuck Silk Company, Minutes of Directors' Meetings.

¹⁰ Interview with a former foreman of the company.

¹¹ Nonotuck Silk Company, Minutes of Directors' Meetings.

¹² In 1911 the Belding Paul Corticelli Silk Company, Ltd., acquired the entire capital stock of Belding, Paul and Co., Ltd., Montreal; Corticelli Silk Company, Ltd., St. Johns; and Cascade Narrow Fabric Co., Ltd., also of Quebec (the latter being controlled by the Corticelli Silk Company). The name of the company was later changed to the Belding Corticelli, Ltd. (Moody's *Manual of Industrial Investments*, New York, 1911).

¹³ Nonotuck Silk Company, Minutes of Directors' Meetings.

Expansion continued into the new century with little interruption. After the depression of the nineties, general throughout the country, plant capacity was increased. The Leonard silk mill, opened in the eighties, burned down in the late 1890's and its property was purchased by the Nonotuck Company.¹⁴ A four-story addition was made to the Florence mill, and a finishing mill was built soon thereafter.¹⁵ There was a low-point in production around 1900-1901 when lay-offs and wage-cuts were instituted, and again during the crisis of 1907.¹⁶ In 1910 the company declared an extra dividend, and also in the years 1911 to 1913 and 1916. In 1917 the capital was doubled.¹⁷

The first board of directors of the Nonotuck Silk Company consisted of Samuel L. Hill and S. L. Hinckley, who had built up the company until the time of its incorporation, A. T. Lilly, Ira Dimock, J. D. Atkins, Lucius Dimock and E. W. Eaton. Hill and Hinckley we already know. Lilly, son of a Mansfield, Connecticut silk manufacturer, had been superintendent of a silk mill in Mansfield, had then traveled for another silk concern, and in 1853 came to Florence to be superintendent of the Nonotuck plants. The Dimock brothers were also silk men from Connecticut. Ira Dimock had begun the manufacture of sewing silk there in 1839 and was "quite successful for several years."¹⁸ Atkins, who had learned the trade of silk dyeing from Valentine of Whitmarsh days, had been a member of the old Community along with Hill. All of these men were residents of the town of Northampton when they formed the corporation. Eaton alone, according to the Articles of Association, was from outside, coming from Brooklyn, New York; he and his family, however, were from that time as closely associated with the company and the community as were the others. These men were to remain directors and officers of the company for the remainder of their lives.

¹⁴ Massachusetts, *Statistics of Manufactures*, 1895, p. 280.

¹⁵ *Ibid.*

¹⁶ Clark, Victor S., *op. cit.*, III, 213; *Hampshire Gazette*, April 23, 24, 1900; *Ibid.*, Feb. 7, 1901.

¹⁷ Nonotuck Silk Company, Minutes of Directors' Meetings.

¹⁸ Brockett, L. P., *op. cit.*, 67.

THE FLORENCE BUSINESS GROUP

Their investment in the silk company did not mark the limit of the business activities of this group of men. On the contrary, as the tables on the adjoining pages show, they and their business friends, including the Haydens and the Willistons, participated actively in numbers of leading enterprises. These local men furnished the business leadership under which the region as a whole emerged as a manufacturing center. The village of Florence on the outskirts of Northampton was the seat of their enterprises, most of the establishments being built there or in the adjacent villages of Haydenville and Leeds. Around the silk mills of the Nonotuck Company, therefore, there came to cluster numerous manufacturing enterprises organized by this closely knit business group. When we examine the wide range of their interests, we can readily see how decisive they were in the region's industrial history.

Long before the establishment of the Nonotuck Company the Willistons and Haydens had been associated in business together. They had built up the extensive button business, later moved to Easthampton by Samuel Williston.¹⁹ The Hayden brothers had engaged in several small businesses of their own. But then they became interested in some of the Florence enterprises, and the Florence group²⁰ in theirs. One of the earlier of these was the Greenville Cotton Manufacturing Company, incorporated in 1846 by Samuel and J. P. Williston, and Joel Hayden.²¹ D. G. Littlefield, whom we shall meet again, was interested in the firm, and A. Lyman, a relative of J. P. Williston, later became one of its officers.²² The building used for the plant was

¹⁹ Samuel L. Williston's Northampton business interests were only a small part of his activities. He lived in Easthampton, an adjoining town, and established several large manufacturing enterprises there, among them, cotton mills and rubber fabric factories. He also had extensive business and civic interests elsewhere.

²⁰ The designation, Florence group, is a convenient one, even though it is not strictly accurate. The Haydens, Willistons and Williams were not Florence men, nor were some of the others, but the leading enterprises were Florence enterprises, and most of the Nonotuck's officers were life-long residents of Florence.

²¹ *Hampshire Gazette*, February 17, 1846.

²² Warner, Charles, *Representative Families of Northampton* (Northampton, Mass., 1917), 77 ff.

the old four-story mill where Samuel Whitmarsh had manufactured silk. Another cotton company was established in Williamsburg in 1847 by Joel Hayden, together with his son, his son-in-law, and a partner, A. D. Sanders. This mill was incorporated as the Hayden Manufacturing Company in 1857. These two plants were producing goods valued at \$122,000 in 1855, and their output continued to increase in the next decade.

Joel Hayden and A. D. Sanders had also established a brass works in 1851. The value of their product—plumbers' supplies—reached \$150,000 in 1865, more than double what it had been ten years before. The *Hampshire Gazette*, probably with the exaggeration of local pride, wrote of this factory that it was the "largest and most extensive of its kind in the country."²³ This plant was destroyed in the flood of 1874, was rebuilt in 1876, but failed within two years. For a number of years it was in the hands of a group of New York and New Haven business men; brass fittings and steam connections were manufactured, and an output valued at around three hundred thousand dollars was reported during most of the eighties and early nineties.²⁴ After suffering difficulties in the depression of the nineties, it again²⁵ passed into local hands; the five sons of a local man who had worked in the old company bought the plant. Production was soon back at the old level²⁶ and the company won the name of being one of the leading producers of plumbers' supplies in New England.²⁷

More closely connected with the group of Florence business leaders was a series of companies incorporated in the years after 1860. One of the most important of these was the Florence Sewing Machine Company, whose directors included S. L. Hill, D. G. Littlefield, I. S. Parsons, George A. Burr, J. L. Otis and L. B. Williams. It is said that Hill became interested in the possibility of making a sewing machine after seeing one exhibited at the

²³ July 17, 1860.

²⁴ Interview with the president of the company.

²⁵ Massachusetts, *Statistics of Manufactures*, 1897, p. 233; *Ibid.*, 1898, p. 306.

²⁶ Interview with the president of the company.

²⁷ *Industry*, Vol. XXIII, April 6, 1929, also Carpenter, A. H., *Northampton Past and Present*, from *Western New England*, I, October, 1911.

Crystal Palace in New York in 1855. It seems likely that his interest had already been aroused, if for no other reason than that Hill was a manufacturer of machine-twist silk, for which the newly invented sewing-machines were creating a growing market.²⁸ The first inventions by Elias Howe, I. J. Greenough and G. H. Corliss had come in the 1840's. Isaac Merritt Singer secured his first sewing-machine patent in 1851 and began to sell machines in 1856.²⁹ Three years later this company and two others of importance, together were producing between forty and fifty thousand machines. Thereafter the expansion of sewing-machine production in the United States was tremendous.³⁰ It is not to be wondered at that an enterprising silk manufacturer with capital to invest, should go into the sewing-machine business.

Hill made arrangements for further experimentation by the maker of the sewing-machine at the Wells and Littlefield machine shop in Florence.³¹ Here the first Florence Sewing Machine was brought out in 1861. A company was formed at once to manufacture the machine with a capital of \$125,000—soon increased to \$500,000. In 1865 the company employed 150 men and produced 13.5 per cent of the region's total output in value of products.³² The plant capacity was doubled in 1868. The company manufactured wooden cases as well as the machinery and was one of the few sewing machine companies which produced the entire machine. Display cabinets for silk manufacturers and thread and needle cases were made. The sewing machines were marketed through the company's own agencies in many cities, and were also exported.³³ After a reorganization during the depression of the seventies, a new product was added—oil stoves, and in the

²⁸ Clark, Victor S., *op. cit.*, I, 576. Also *Encyclopedia Britannica*, 1936, "Sewing Machines."

²⁹ *Mechanics of the Sewing Machine*, Monograph 5, Joint Committee Series, National Education Association, edition published by Singer Sewing Machine Co., 1914, pp. 42-45.

³⁰ Byrn, E. W., *The Progress of Invention in the Nineteenth Century* (New York, 1900), 183-188. Cf. also U. S. Census 1870, *Special Statistics of Manufactures*, Table X, "Sewing Machines, 1860-1870."

³¹ *Northampton Directory*, 1860.

³² Massachusetts, *Statistical Information Relating to Certain Branches of Industry* (1865).

³³ Interview with former foreman of the company.

early eighties a new model sewing machine, the "New Crown." The company was operated by the Florence group until 1891, when a consolidation of a number of oil stove concerns took place under the Central Oil Gas Stove Company, which, in addition to the Florence firm, absorbed companies in Cleveland, Greenwich, Connecticut, Jackson, Michigan, and Gardner, Massachusetts.³⁴

The Florence Manufacturing Company, incorporated in 1866, successor to the Littlefield and Parsons daguerreotype case firm, soon branched out into the manufacture of hair brushes and hand mirrors. Before the middle eighties, this company had chiefly made toilet brushes; now it began to make the toothbrush—"pro-phy-lac-tic"—that was destined to become its main product.³⁵ Indeed, this is said to be the oldest toothbrush firm in America.³⁶

Starting with a labor force of about fifteen, in twenty years the company was employing a hundred men and women.³⁷ To get its products on the market, it had begun with a single representative whose headquarters were in New York. As the business grew, more men were sent out, and before the middle eighties a Chicago office had been established.³⁸ The *Hampshire County Journal* of 1887 mentions a San Francisco salesroom, and also a growing trade with China, Australia and South America.³⁹ In the nineties the keenness of competition forced the firm to "go after the trade,"⁴⁰ and an extensive advertising campaign was launched.⁴¹ The business continued to grow; a large addition

³⁴ Massachusetts, *Statistics of Manufactures*, 1891, p. 314. The sewing machine industry, like other even more interesting and important industries, was finally removed from the Connecticut Valley. Chicopee, for example, was the home of two early automobile firms, the Stevens-Duryea and the Overman companies, but they were moved elsewhere. (Cf. Shlakman, Vera, *op. cit.*, 203-204). An interesting story could be written of these industries, now no longer to be found in the Connecticut Valley.

³⁵ Interview with former employee of the company, January, 1934.

³⁶ Florence Manufacturing Company, *Fifty Years of Brushmaking*, 1866-1916.

³⁷ Massachusetts, *Statistics of Manufactures* (1892), 461.

³⁸ Interview with a former foreman of the company.

³⁹ *Hampshire County Journal*, Quarter Centennial Edition, 1887.

⁴⁰ Interview with former employee.

⁴¹ This company made many changes in materials and design as competition became sharper. For example, in the eighties it had used wood for brush and mirror backs, but wood was soon replaced by the firm's own "Florence composition." Early in the century the thigh bones of cattle

TABLE A. MILL RIVER ENTERPRISES IN WHICH THE FLORENCE BUSINESS GROUP AND MEN ASSOCIATED WITH THE FLORENCE GROUP WERE INTERESTED IN THE SECOND HALF OF THE NINETEENTH CENTURY*

Company	Date of Establishment or Incorporation	Product	Prominent Investors
Nonotuck Silk Company (Later Corticelli Silk Company)	1846 (Started as partnership, Hill and Hinckley) Incorporated 1866	Silk goods (Trade Mark "Corticelli")	S. L. Hill—(partnership with Hinckley 1846-1855; other partners joined company in 1855). Treasurer and general manager 1865-1872. President 1872-1876 S. L. Hinckley—president 1865-1871 H. R. Hinckley—director 1872-1877 A. T. Lilly—partner 1862; director 1865-1887 A. G. Hill—1865-1885 J. D. Atkins—1855-? Ira Dimock, director, 1865-1917 Lucius Dimock—director 1865-1902 E. W. Eaton—1862-1896 (of Brooklyn, N.Y.) W. E. Eaton—1896-1907 F. W. Eaton—1907- B. A. Armstrong—(of Brainerd & Armstrong, silk manufacturers, New London, Conn.) 1881-1928 ca. J. P. T. Armstrong—(also of Brainerd and Armstrong) 1907-
Northampton & Springfield Railway Co.	1844		S. L. Hinckley
Greenville Mfg. Co., Florence	1846	Cotton goods	S. L. Williston (one of organizers) J. P. Williston A. Lyman Williston, entered company, 1852 Joel Hayden D. G. Littlefield (Comment made: "Helped to start cotton mill in Florence.")
Hayden & Sanders Company. Later Haydenville Manufacturing Co.	1847	Cotton goods	Joel Hayden Stephen M. Crosby (son-in-law Joel Hayden) superintendent A. D. Sanders Joel Hayden, Jr.
Haydenville Company	1851	Brass goods (Plumbers' supplies)	Joel Hayden—1851-? A. D. Sanders—1851-? Christian J. Hills family—1898-
Florence Mfg. Company (Started as Littlefield, Parsons & Co., 1854)	1854 (Inc. 1866)	Early period: buttons, daguerotype cases. Later—hair brushes, hand mirrors, tooth brushes. ("Prophy-lac-tic" brushes)	D. G. Littlefield, partner 1856-1866; president, 1880-1891 (at least) S. L. Hill Samuel Hinckley H. R. Hinckley—director 1893-? I. S. Parsons—1854-? president, 1871-1876 (at least) G. A. Burr—1866-, president, 1868-1869; treasurer, 1871-1876 E. W. Eaton, president 1893-? F. N. Look—1893-
Hampshire & Hampden Railroad	1854		S. L. Williston
Hiram Wells & Co., then Wells, Littlefield Co.	About 1850-1861	Saws, foundry, machine shop, then sewing machines. (See Florence Machine Co.)	D. G. Littlefield Hiram Wells S. L. Hill

*This table has been made as complete as possible. Undoubtedly some omissions have occurred, and there may be errors in the material given. The sources of the information are business directories, town directories, gazetteers, local histories and personal interviews.

TABLE A (continued).

Company	Date of Establishment or Incorporation	Product	Prominent Investors
Florence Sewing Machine Co. (Started as Wells & Littlefield)	Inc. 1861	Sewing machines: "Florence" sewing machine. "New Crown" sewing machine. Later—"Florence" oil stoves	S. L. Hill (active in early years) D. G. Littlefield, president 1861-1891 I. S. Parsons, vice-president 1871-1879 (at least) George A. Burr, treasurer 1873-? W. Herrick J. L. Otis L. B. Williams
First National Bank, Northampton	1864		A. L. Williston H. F. Williston
Northampton Emery Wheel Company	1867		S. L. Hill Ira Dimock—president 1873-1887 (at least) J. L. Otis, 1867-1887 (at least) H. P. Otis (son of J. L.) L. B. Williams, 1867-1895 H. L. Williams (son of L. B.) A. T. Lilly
Hampshire Savings Bank	1869		Luther Bodman (son of the Bodmans, woolen manufacturers), president, 1873-1887 Lewis Warner, treasurer, 1869-1873 (at least) J. C. Arms L. B. Williams W. T. Clement
Northampton Cutlery Co.	1871	Cutlery	H. R. Hinckley H. L. Williams L. B. Williams
Florence Savings Bank	1873		A. T. Lilly A. L. Williston I. S. Parsons George Burr H. H. Bond S. L. Hill A. G. Hill
Florence Furniture Company	1873-1919	Burial caskets	S. L. Hill A. T. Lilly, president, 1873-1880 A. G. Hill, president, 1890-1893 J. D. Atkins H. B. Haven, treasurer, 1873-1905 George A. Burr
Florence Tack Company	1874	Tacks	A. G. Hill D. W. Bond H. H. Bond A. T. Lilly
Norwood Engineering Company	1892	Filters, etc.	H. P. Otis H. Hosford J. D. Atkins Ira Dimock
Martin & Hill Cash Carrier Company	?	Cash carriers	A. G. Hill, 1882-?
Northampton Pegging Machine Co.	?	Hoes	H. R. Hinckley, president, 1871-? D. C. Rogers

TABLE B. LOCAL BUSINESS MEN IN THE EXPANSION OF MILL RIVER INDUSTRIES, IN THE NINETEENTH AND EARLY TWENTIETH CENTURIES*

Names of Business Men	NAME OF COMPANY																	
	Nonotuck Silk Co.	Greenville Cotton	Haydenville Cotton	Haydenville Co. (brass goods)	Florence Mfg. Co. (brushes)	Florence Sewing Machine Co.	Northampton Emery Wheel Co.	Northampton Cutlery	Florence Furniture Co. (caskets)	Florence Tack Co.	Mill River Button Co.	Cash Carriers	Northampton Pegging Machine Co.	Norwood Engineering Co.	Williams Mfg. Co. (baskets)	Banks	Railways	Outside Interests
S. L. Hill.....	X				X	X	X		X							X		
A. G. Hill (son).....	X								X	X		X				X		X
C. A. Sheffield (grandson)...	X																	
S. L. Williston.....		X															X	X
J. P. Williston (brother).....		X															X	
A. L. Williston (son of J.P.)...		X									X						X	
Josiah Hayden†.....																		
Joel Hayden (brother).....		X	X	X													X	X
Joel Hayden, Jr. (son).....			X	X														
S. L. Hinckley.....	X				X												X	
H. R. Hinckley (son).....	X				X			X					X				X	X
B. B. Hinckley (grandson).....								X										
George Burr.....					X	X			X								X	
F. N. Look (son-in-law).....					X	X												
A. T. Lilly.....	X						X		X	X							X	
J. D. Atkins.....	X								X					X				
Ira Dimock.....	X						X							X				
Lucius Dimock (bro. of Ira).....	X																	
S. W. Lee (son-in-law).....	X																	
H. D. Lee (grandson).....	X																	
D. G. Littlefield.....		X			X	X												X
J. L. Otis.....					X		X											
I. S. Parsons.....					X	X											X	
H. F. Williams.....															X	X		
L. B. Williams (brother).....						X	X	X							X	X		
H. L. Williams (son).....							X	X							X	X		

*This table has been made as complete as possible. Undoubtedly some omissions have occurred, and there may be other minor errors. The sources of the information are business directories, town directories, gazetteers, local histories, and personal interviews.

†Josiah Hayden was associated with his brother and Samuel Williston in the early button factory and in other enterprises.

were used for handles, then this material was discarded for "pyroxalin," a celluloid compound. The old design toothbrush had had four rows of bristles and straight handles; when a New York dentist designed a brush with three rows, tufted ends and a curved handle, the Florence company soon acquired the rights of manufacture, and through extensive advertising, the "pro-phy-lactic" became a nationally known product.

was made to the plant in 1907, another in 1913 almost doubling plant capacity, and still another in 1918-1919.⁴² Officers of the company were leading figures in the Florence group—D. G. Littlefield, S. L. Hill, S. L. Hinckley and his son H. R. Hinckley, E. W. Eaton, I. S. Parsons, G. A. Burr and his son-in-law, F. N. Look.

The same group of men invested in the Northampton Emery Wheel Company which was organized in 1867. This was a small firm, yet it doubled its capital ten years after it was established, and by the early eighties had a branch house in Chicago for marketing its goods in the middle west, and shipped also to England, France, Germany and Sweden, continuing production until 1913.⁴³

Another venture launched by S. L. Hill, A. T. Lilly, J. D. Atkins and others of the group was the Florence Furniture Company, a casket factory. Organized in 1873, the company was able to pay dividends ranging from 6 to 10 per cent in the last two decades of the century.⁴⁴ In 1900 the company's condition was declared to be "very satisfactory,"⁴⁵ as indeed it must have been, for it continued to pay dividends of 10 per cent up to 1910. Our next record in 1914 shows that 6 per cent was paid on preferred stock in that year.⁴⁶

A. G. Hill, the son of Samuel Hill, and A. T. Lilly, were interested in a Tack Company which started production in 1874. The company made a good start and flourished through most of the eighties.⁴⁷ As that decade opened, its president was offered \$225 a share for his 200 shares. But as the decade closed the company was running into financial difficulties, the result, it was claimed, of "great competition and low profits" (sic). The *Hampshire Gazette* declared that the problems of the local company were common to all tack manufacturers at the time, in Pennsyl-

⁴² Interview with former foreman of the company.

⁴³ *Hampshire County Journal*, Quarter Centennial Edition, 1887, and interview with former president of the company.

⁴⁴ Florence Casket Company, Minutes of Directors' Meetings.

⁴⁵ *Ibid.*

⁴⁶ *Ibid.*

⁴⁷ At this time the company was producing tacks of every kind made of copper, brass, zinc and several kinds of iron.

vania and the south and west, "due in large part to the substitution of steel for nearly every use to which iron was formerly put."⁴⁸ Be that as it may, the company failed in 1892, and because it was not incorporated, the individual members were liable for a debt of more than \$100,000, only half of which was covered by assets.⁴⁹

In 1892 some of the group launched the Norwood Engineering Company. Interested in it were Atkins and Ira Dimock, and also H. P. Otis, a local man who had worked for the Emery Wheel Company, and H. W. Hosford, for some time connected with the Haydenville Company. Starting as a small firm employing about 30 men and with a \$10,000 capital,⁵⁰ in four years it consolidated with a company in near-by Holyoke, increased its capital to \$50,000, and began to specialize in filter equipment for paper and textile mills and for city water supplies. Additions to its plant were made twice in the early 1900's.⁵¹

Some members of the group were interested in a few other firms of lesser importance, including the Northampton Pegging Machine Company, the Hill and Martin Cash Carrier Company, a safety fire arms company, and the Northampton Cutlery which is treated below. The full range of their activities is indicated in Tables A and B.

Practically all of these men invested in local banking enterprises. In the Florence Savings Bank were A. T. Lilly, S. L. Hill and his son, also George Burr, A. L. Williston, H. H. Bond and I. S. Parsons; in the Northampton Institution for Savings, Hinckley and J. P. Williston; in the First National, two Willistons, Joel Hayden and H. F. Williams; in the Northampton National, two Williams, Burr and Hinckley; in the Hampshire Savings, L. B. Williams, and several men outside the group including Luther Bodman, son of the woolen manufacturer, and W. T. Clement, of the cutlery company. Some were interested in banks outside the region. All of these men were bankers as well as manufacturers.

Most of the companies initiated by the group prospered for

⁴⁸ *Hampshire Gazette and Northampton Courier*, March 15, 1892.

⁴⁹ *Ibid.*, April 12, 1892.

⁵⁰ Sheffield, C. A., *op. cit.*, 240.

⁵¹ Massachusetts, *Statistics of Manufactures*, 1901, 20.

many years. While large sums of money were withdrawn for the payment of dividends, it is quite plain that a great part of these were reinvested in other undertakings.⁵² The rapid growth of industry suggests that a good share of the profits were used for direct capital expansion.

INDUSTRIES OUTSIDE THE FLORENCE GROUP

Two groups of enterprises in the region fall outside the Florence group. There were those whose fortunes were not directly guided by the dominant group of business leaders but which had remote connections. The owners of the basket company invested in enterprises of the Florence group; members of the Florence group were for a time interested in the largest cutlery plant and one of the button firms. There were also the enterprises entirely unconnected with the Florence group. Of these the two cutlery factories and the paper mills were small, and the oldest industries, wool and buttons, were rapidly dying by the end of the century.⁵³ The new silk companies were the most important enterprises to belong entirely outside the Florence business group.⁵⁴

⁵² Considerable sums also went into community institutions in which the old Nonotuck leaders took a great interest. None was more active than Samuel L. Hill who had been one of the staunch members of the old Northampton Association for Education and Industry. In 1863 he helped to found, and for the remainder of his life was president of, the Free Congregational Society of Florence, which had as its aim "the promotion of general intelligence, good morals, and liberal religious sentiments." For the first ten years of its existence the Society met in rooms on the second floor of the school house which Hill had built for the Florence School district. It was then decided to build a hall, not only for the Society's meetings, but as a general community center. It was largely through Hill's financial aid that the building was erected. He also gave money to found the Florence Kindergarten, opened in 1876. At his death in 1882 he left a trust fund for the broadening of the activities of the kindergarten; it became the Hill Institute, offering vocational and adult education classes.

A. T. Lilly during his life contributed to various educational enterprises, among them the Lilly Library of Florence, the Hill Institute, the community hall, and Smith College. In 1859 he helped to establish evening schools in Florence. His first gift to the Florence community hall was \$10,000, and he added more from time to time. In 1886 the Lilly Hall of Science at Smith College was made possible by his gifts. At his death in 1890 he left his entire estate, estimated at \$250,000 to the trustees of the Hill Institute. (*Hampshire Gazette*, Nov. 7, 1927).

Lucius Dimock, who lived in Leeds, contributed money for educational projects there. The Look family also gave large sums for community projects, and others could be named.

⁵³ In the same year two button factories and the last of the woolen mills closed.

⁵⁴ There was, of course, as in every other industrial center, a great miscellany of smaller establishments, hardware, tinware, castings, soap, brooms,

Three members of the Williams family participated in the general investment movement which we have outlined, and came to be directors of banks, of the Florence Sewing Machine Company, the Northampton Emery Wheel Company, and the Northampton Cutlery Company. However, they were primarily interested in their basket works which were strictly a family affair. This company had started operations in Huntington, but moved to Northampton in 1862. Later incorporated as the Williams Manufacturing Company, it started out on a modest scale and in the eighties⁵⁵ achieved a capacity of 10,000 baskets a day. Its raw material was secured from the locality and also from northern New England where the Williams family owned 75,000 acres of wood land. Made for every conceivable purpose, the baskets were shipped to the fruit regions of California and New York, to cotton plantations, to the deep South and Texas, to the oyster beds of Long Island, to the meat packers in Chicago. Coal baskets, laundry baskets, market baskets, even fancy baskets for home use, came out of this versatile plant.⁵⁶ When in the following decades there came a sharp change in market demand, the basket company was quick to adapt itself to the change. Baskets were safe and secure containers for shipping purposes, but for relatively cheap products for which they were designed, they were expensive, and by adding weight, made shipping charges unduly high. By 1895 a lighter type of container began to come into use. The plant was turned to making cases or box shooks for fruit and vegetables.⁵⁷ To this was added a few years later (1899) the making of veneer drums (cylindrical wooden containers) which were coming to be used widely for chemicals, glue and other liquids and, in many instances, were replacing sacking which had not proved successful for shipping powdered goods.⁵⁸

Tools, cutlery and agricultural implements were made by

bricks, etc. These goods were produced in small shops, using steam rather than water power, and employing only a few helpers.

⁵⁵ Interview with former employee.

⁵⁶ Interview with former owner.

⁵⁷ Interview with former president of the company.

⁵⁸ Massachusetts, *Statistics of Manufactures*, 1899, 32.

various companies and with varying success. These metal firms were to attain a position of larger importance in the first decades of this century, and to share in the new movement of capital occurring then. The Bay State Tool Company in its first year (1854) reported a payroll of 150 men and a product valued at \$100,000. Its main market was found in the southern cotton regions.⁵⁹ Its success, however, was only temporary;⁶⁰ a mortgage taken two years after its establishment was defaulted in 1858⁶¹ and the company's land, buildings and machinery sold for \$33,000 to three outside men,⁶² who continued the manufacture of agricultural tools and later added table cutlery to their products. The company was incorporated in 1862 at \$60,000; in 1869 this was increased to over \$200,000.⁶³ During the Civil War, as might be expected, gun barrels and bayonets were made.⁶⁴

The Northampton Cutlery Company, incorporated in 1871, seems to have been the outgrowth of the Bay State Tool Company, which may have fallen into less fortunate days after the Civil War. This plant was turning out butcher, hunting and carving knives to be marketed through wholesale hardware jobbers in St. Louis, St. Paul and New Orleans, and the unmounted blades of table cutlery were sent to silver platers in Connecticut. In the late 1880's the firm set up a small plating shop of its own which allowed the products to be marketed under its own trade name.⁶⁵ It now had a growing foreign trade "that astonishes even the companies' officers themselves."⁶⁶ In the fifteen years after 1875 it nearly trebled its output.⁶⁷ In 1892 the *Gazette* reported, "Work has grown so there may be a new and large fac-

⁵⁹ Interview, Mr. Oscar Edwards, March 17, 1933.

⁶⁰ Registry of Deeds Hampshire County, Book 164, p. 370.

⁶¹ *Ibid.*, Book 180, p. 422.

⁶² William T. Clement, C. A. Maynard, C. W. Hawkes.

⁶³ Registry of Deeds, Hampshire County, Book 213, p. 342.

⁶⁴ Massachusetts, Secretary of the Commonwealth, *Statistical Information Relating to Certain Branches of Industry in Massachusetts for 1865*.

⁶⁵ *Hampshire Gazette and Northampton Courier*, March 22, 1892.

⁶⁶ *Inland Massachusetts* (Springfield, 1890), 186.

⁶⁷ Massachusetts, *Census of Manufactures, 1875*, III, 77 ff.; also interview with the president of the company.

tory erected this summer."⁶⁸ By this time the number of men employed had risen to 300.⁶⁹ H. R. Hinckley, H. L. and L. B. Williams were directors.

Another cutlery shop was established in 1889 by E. E. Wood, who had held a managerial position with the Northampton Cutlery Company. Wood marketed his product at first by employing New York and Boston jobbers.⁷⁰ In 1901 the Wood plant was bought by William A. Rogers, Ltd. of Canada and additions to the plant were soon begun.⁷¹ The output of flatware, hollow ware and solid steel knives was greatly increased.⁷² E. E. Wood, Jr. remained with the company as local manager.

C. A. Maynard, who had been a member of the original Bay State Tool Company, continued the production of hoes and implements for southern agriculture after the war.⁷³ W. T. Clement, who had been Maynard's partner, started another cutlery shop in 1882 with William W. Lee who had been employed with the Haydenville Brass Works. This firm made blades only, furnishing them direct to a few large silver platers. About 100 men were employed in 1892.⁷⁴

The rise of new industries had completely overshadowed the older industries, wool and buttons. By the middle fifties only two small woolen plants remained. One of the Bodmans and a partner clung to the making of satinet and flannel in their establishment which had been operating since 1819. In 1855 Bodman sold his mill to a former Williamsburg man who began to manufacture "shoddy."⁷⁵ This mill had to be rebuilt after the disastrous flood of 1874; it never flourished after this⁷⁶ and was closed permanently in 1891.⁷⁷ The momentum of an early start may have been responsible for much of the persistence of

⁶⁸ *Hampshire Gazette and Northampton Courier*, March 22, 1892.

⁶⁹ *Daily Graphic*, New York, March 5, 1878; interview with the president of the company.

⁷⁰ Interview with former president of the company.

⁷¹ Massachusetts, *Statistics of Manufactures*, 1901, 20.

⁷² *Hampshire Gazette*, April 11, 1901.

⁷³ Massachusetts, *Census of Manufactures*, 1875, III, 77 ff.

⁷⁴ Interview with former president of the company.

⁷⁵ Massachusetts, *Census of Manufactures*, 1891, 322.

⁷⁶ Interviews with several long-time residents of Williamsburg.

⁷⁷ Massachusetts, *Census of Manufactures*, 1891, 322.

the woolen industry in the face of highly competitive conditions throughout the state.

The button industry also had a continuous line of development. We saw that the large Williston button factory had been removed to Easthampton in the earlier period. In 1855 buttons accounted for only 3.4 per cent of the region's total value of output. It had been 35 per cent. In 1865 it had risen again to about 11 per cent of the total. New firms had begun to operate.

This reappearance of button manufacture in the region coincided with general expansion in the button industry. One account, which lists the "substantial firms," shows the number to have more than doubled in the twenty-five years after 1860.⁷⁸ Connecticut continued to be the center of button manufacture, although in 1870 Massachusetts, with half the number of establishments, produced goods almost equal to Connecticut's in value; Pennsylvania ranked next to these two states.⁷⁹

Several varieties of buttons were made in the region. The E. N. Foote Company, a small concern, produced fancy metal buttons from 1857 to 1891.⁸⁰ More important was the Critchlow plant which in the 1840's for the first time in this country, started to produce vegetable ivory buttons. That this innovation was a lasting contribution to the industry is seen by the fact that in 1929 nearly eight million gross of vegetable ivory buttons were manufactured in the United States, valued at more than four and a half million dollars, or nearly a fourth of the total value of buttons produced.⁸¹ In the Mill River region the vegetable ivory button business did not become an industry of any size. In 1854 S. L. Hill and I. S. Parsons, business men of the Florence group, joined the firm, and production was expanded to include daguerreotype cases, frames and watch cases of "Florence composition." But in 1858 Critchlow was bought out and the next year, while he seems to have resumed the manufacture

⁷⁸ Jones, W. U., *op. cit.*, 93 ff.

⁷⁹ U. S. Census 1870, *General Statistics of Manufactures*, Table IX.

⁸⁰ Massachusetts, *Census of Manufactures, 1891*, 314.

⁸¹ *Encyclopedia Americana*, 1936, "Buttons." Vegetable ivory is the seed of a species of palm, grown on the coast of central and northern South America. Buttons made of this material are said to be used almost universally for tweed coats and vests.

of vegetable ivory buttons, the original company continued in the hands of Hill, Parsons and Littlefield, and eventually became the Florence Manufacturing Company. The Foote and Critchlow plants together were employing nearly 200 workers in 1865.⁸² The latter company was destroyed by the Mill River flood of 1874, but survived after its reconstruction for another decade.⁸³ Two other factories in Williamsburg made suspender, peacoat and wooden buttons, but their combined output amounted only to \$15,000, and their labor force to about 25 men and women.

In time three paper mills were established in the region, but all of them were small industries. A total of 144 wage earners was reported for 1865. The largest was the old Butler paper mill, purchased in the middle forties by William Clark, a well-to-do farmer, whose grandfather had received one of the original grants of land, and who had lived all his life in Northampton. This too was a family firm. Clark, his brother, and his two sons owned most of what was then called Paper Mill Village, and in addition to the land and the factory itself, had a large boarding house and a number of houses which were rented to the employees, and a store. They raised cattle, hogs and chickens to supply the store from which goods were sold to the mill employees, and also to townspeople who came there to trade.⁸⁴ The paper industry had disappeared by 1887.

OTHER SILK COMPANIES

The Nonotuck Company, successor to the original Whitmarsh concern, was not the only silk firm to grow out of the Florence Community. Three of the members of that organization, Joseph Conant, Earle D. Swift and Orwell Chaffee, Mansfield, Connecticut, men, decided soon after the Community was established, that its co-operative form of organization was unsuited to the promotion of a financially prosperous enterprise. As we have

⁸² Massachusetts, *Statistical Information Relating to Certain Branches of Industry*, for 1865.

⁸³ *Hampshire Gazette and Northampton Courier*, March 15, 1892.

⁸⁴ Interview with Mr. W. C. Polmatier, also with Miss Amelia Clark and Mr. Thomas Kearney.

noted, they severed their connection with the Association and built a silk mill of their own at a small water privilege on a near-by tributary of the Mill River. In 1846 the Conant Manufacturing Company was incorporated at \$50,000 for the manufacture of sewing silk.⁸⁵ Other partners than those who had originated the business were drawn in to carry it on, and the concern flourished for several decades. It was a small company, and produced sewing, twist, saddlers and embroidery silk. Another company was established by William Skinner in a Williamsburg suburb—for a time called Skinnerville—in 1853. Skinner was an English silk craftsman who before starting his own company was employed in a dye works in Northampton and also by the Conant Silk Company. In 1860 he was employing 40 or 50 workers. He moved his business to Holyoke after the plant was washed away by the Mill River flood of 1874.⁸⁶ This was the beginning of the great Skinner silk firm of Holyoke of today. Another small firm employing only 40 operatives was making sewing silk and other products in the early fifties.⁸⁷

Far more important for the region than these enterprises was the establishment of the Belding Silk and the McCallum Hosiery companies. A third concern, the J. N. Leonard mill, opened in the eighties, was destroyed by fire ten years later, and the site and water-privilege were purchased by the Nonotuck Company.⁸⁸ Belding Brothers, a Connecticut corporation, established a branch plant in Northampton in 1876, the first large outside enterprise to come in. About fifteen years later, Alexander McCallum opened his hosiery mill. The part played by these enterprises in the region will be treated in the next chapter.

⁸⁵ Massachusetts, *Private and Special Statutes*, 1848, VIII, 634.

⁸⁶ *Hampshire Gazette*, July 17, 1860.

⁸⁷ Northampton silk firms were given a number of awards by the American Silk Institute of New York. They included: 1843—Northampton Association of Education and Industry, raw silk, diploma; sewing silk, second best, diploma. 1847—Northampton Silk Company, sewing silk, best; Van Schaick premium, \$10 and bronze medal. 1869—Nonotuck Silk Company, Florence, Massachusetts, bleached and colored sewing silk, machine twist and sewing in the gum, best, medal and diploma. (Brockett, L. P., *op. cit.*, Ch. XXI).

⁸⁸ Massachusetts, *Statistics of Manufactures*, 1895, 280.

CHANGES IN POWER

It was clearly evident by the middle of the century that the region had virtually outgrown its water-power facilities.⁸⁹ Early factories had gravitated toward the upper Mill River where some of the best power sites were located. The important Shepherd woolen mill was on the Williamsburg side of the town line; so was the first Williston-Hayden button factory; the Skinner silk mill was established up-stream. The Northampton Silk Company, later followed by the Nonotuck, occupied one of the best water-privileges on the lower part of the river. By 1850 the stream was lined with mills, large and small, all dependent on water-power. It was between 1840 and 1850, we are told, that much discussion was going on throughout New England as to the relative merits of steam and water-power for the manufacture of textiles. As yet steam was much more expensive, but the claim was being made that a better quality of product resulted from machinery run by steam.⁹⁰ A number of large steam-run textile factories were being set up in New England centers, and while no information seems to be available as to the amount of steam power in use in factories before the 1860's, steam was becoming an important factor in industrial expansion.

Steam engines were not installed in any Mill River factories until the late 1850's, and then in new plants. The first factory to adopt steam in the region, so far as we know, was a small button plant, built in 1857, and using steam exclusively. Then came saw mills, a hoop skirt factory and a portemonnaie plant. The first large steam-run factory was the sewing machine company established in 1861 by S. L. Hill and his associates. The basket factory, built the next year, was also run by steam. Thereafter in the seventies and eighties all of the remaining important plants installed steam engines; the important Belding Brothers Silk

⁸⁹ The Mill River in a small way had reached somewhat the situation described for the Blackstone, which in 1840 "had along its banks 94 cotton factories, 22 wool mills, and 34 machine shops, crowding every available site and exhausting the last drops of energy in the stream." (Keir, M., *Manufacturing Industries in America*, New York, 1920, p. 159.) In 1855 the Mill River region had 74 establishments. Some of them of course used very little power.

⁹⁰ Clark, Victor S., *op. cit.*, I, 409 ff.

factory used steam from the start, as did the casket factory. The Nonotuck Silk Company, the brush factory, and the brass works supplemented water-power with steam engines in the seventies, and the cutlery plants and other metal firms did so in the eighties and nineties.⁹¹

A disastrous flood on the Mill River, coming in 1874, undoubtedly hastened the transition from water-power to steam; it swept away dams on the upper stream and with them several factories. The one remaining woolen plant was left high and dry, because the river shifted its channel; the Skinner silk mill (later moved to Holyoke), the brass works, two button factories and some smaller shops, were completely destroyed. The 1875 census data show that the region's factories derived 43 per cent of their total horsepower from steam engines; water-wheels at this date were still furnishing the larger share. Twenty years later, however, the situation was reversed: steam engines furnished 59 per cent of the horsepower, water-wheels 37 per cent, and electric motors, now beginning to appear, 4 per cent. The decades after 1900 of course saw both steam and water-power displaced by purchased electrical energy.

POST-CIVIL WAR EXPANSION

The introduction of steam power was one factor in the growth of industry after the Civil War. There was also the rapid expansion of markets in the United States, together with the vastly improved transportation and communication facilities, and a great variety of far-reaching technological improvements. Conditions were exceptionally favorable to silk manufactures. In the crisis of 1873 silk suffered very little, and after the depression it prospered to an extraordinary degree. The secretary of the Silk Association of America in his report of 1880 mentions improvements in machines—especially the introduction of the power loom,—a growing trade with the Orient, and rapid fashion changes, as significant elements in the progress of silk in the seventies.⁹²

Looking back it is quite evident that the Mill River region,

⁹¹ Clark, Victor S., *op. cit.*, I, 407 ff.

⁹² *Ibid.*, 450 ff.

small though it was,⁹³ shared fully in the industrial expansion characteristic of the United States in the latter part of the nineteenth century.⁹⁴ Indeed it experienced a remarkable growth. We have but to examine the production statistics for the period to realize this.⁹⁵ In 1900 value of output showed a fivefold increase for the thirty-five years since the Nonotuck's incorporation.⁹⁶ Value of product was close to four and a quarter million dollars in 1900 and by 1915 it was nearly nine million dollars. It is also quite evident that the bulk of the region's industrial expansion went forward under the aegis of a relatively compact group of local men, closely connected by business and family ties. These men, rapidly accumulating wealth from the one or two leading industries of the region, of which silk was the chief, as rapidly re-invested it in numerous other enterprises, becoming the dominating financial and business figures of their communities. This pattern of a closely interlacing local investment and control is perhaps the most distinctive feature of the region's industrial history.

⁹³ In the early 1890's the total population of Northampton and Williamsburg, the towns comprising the Mill River region, was less than 20,000; the total number of wage earners was about 2,500.

⁹⁴ In the decades of the sixties the value of manufactured goods in the United States increased by 124.4 per cent; for the region (1865-1875) there was an increase of 125 per cent. (Coman, Katharine, *The Industrial History of the United States*, New York, 1917, p. 290; for regional data see Tables I and III, Appendix.)

⁹⁵ See Appendix, Table III, for annual data on value of product and number of wage earners employed, 1886-1932.

⁹⁶ In estimating this increase the data on value of products were corrected for changes in the price level.

CHAPTER VII

LABOR AND LOCAL ENTERPRISE

The region's labor history in the second half of the nineteenth century showed many of the trends found in other New England textile towns. The constitution of the labor force and the conditions under which wage earners worked were much like what we find elsewhere in Massachusetts. Labor relations, also similar to those in other textile towns in their general outlines, yet bore the stamp of special local conditions due to the emphasis given certain policies by the Florence group of industries.

CONSTITUTION OF THE LABOR FORCE

By the end of the nineteenth century about one-half of all wage earners in the region had come to be employed in the silk mills. While other industries were expanding rapidly, so was the silk industry, so that the proportion of workers in silk in succeeding years never fell much below a half of the total.

With textiles so important, the number of women in the labor force was of course large. In 1875, of nearly one thousand silk workers, less than one-fourth were male.¹ The number of female workers remained at least twice that of men, even after the establishment of hosiery and fabric departments where most of the skilled work was done by men. We should add to the silk workers the labor force of the brush factory, where about fifty per cent of the employees were women.² Only the metals factories and basket works, among the larger plants, had a predominance of men.

Many foreign-born workers came to the region, but not in as large numbers as in some industrial centers.³ In the decades after 1870 the population was never less than 75 per cent native, and by 1930 it was 80 per cent. In the 1840's and 1850's there

¹ Massachusetts, *Census of Manufactures, 1875*, II.

² *Ibid.*

³ In Chicopee in 1875 35 per cent of the total population was foreign born; between 1890 and 1895 it was 43 per cent, and between 1905 and 1915 it was 40 per cent. (Cf. Shlakman, Vera, *op. cit.*, 195).

was a large ingress of Irish workers, and these, with the French Canadians who came a little later, a few Germans and some English, and the native Americans from the surrounding country, made up the industrial population of the last half of the nineteenth century.⁴ The expert cutlery workers of the early years came from Sheffield, England, and Solingen, Germany, some from a line of grinders of five and six generations. Some of the silk dyers also were Germans. With the new century came an increasing number of Polish and Italian workers; by 1923 the predominant nationality in the cutlery works was Polish,⁵ and the silk mills also had a large number of Polish employees.

WORKING CONDITIONS

Wages and hours followed the same trends as in New England generally. In general the level of wages was rising.⁶ Skilled

⁴A forthcoming study of agriculture in the Connecticut Valley, by Margaret Pabst for the Council of Industrial Studies, will treat the movement of agricultural population into industrial towns.

⁵Interviews with the managers of the different cutlery plants.

⁶Average wages in 1875 can be shown for certain industries from the Massachusetts, *Census of Manufactures*. (1875, Vol. II.) Unfortunately these do not include silk. We cite the average daily wage for day work.

<i>Northampton</i>	<i>Males above 15</i>	<i>Females above 15</i>	<i>Both Sexes under 15</i>
Cotton	\$1.25	.80	.50
Machines and machinery.....	2.75	..	..
Metals and metallic goods....	2.20	1.00	.49
Paper	1.45	.74	..
Wooden goods	2.21	..	..
<i>Williamsburg</i>			
Cotton	2.00	..	.60
Metals and metallic goods....	2.26	..	..
Woolen goods	1.43	.85	.70

From miscellaneous sources we obtained scattering figures on weekly wages paid in the different industries. They are useful to show the differences between the several industries. Most of the information came from long-service employees. Since it was drawn largely from memory, it is only roughly accurate, yet the checking of one testimony against another showed general agreement.

In the 1880's skilled cutlery workers and molders were making about \$10 a week. Dyers in silk mills, also male, made from \$7.50 to \$9; other male employees in silk from \$6 to \$7.50. Men in the brush factory from \$9 to \$12. Women were making about \$5.50 a week in the silk mills and \$4 in the brush factory.

In the 1890's cutlery workers in general were making \$12; polishers and grinders at Rogers' plant, \$15 to \$18. Dyers in silk mills were then earning \$12. Women were averaging \$7.50 a week.

In the 1900's dyers at the Nonotuck were said to be averaging \$12,

craftsmen in cutlery and other metal trades, and later, knitters in hosiery, comprised the higher paid groups. The large numbers of women employed by silk mills and brush shops, and the semi-skilled nature of their operations, determined the generally lower wage-level of these industries.⁷ Hours were long, but for women they were eventually shortened by legislation. In 1874 a Massachusetts law made the sixty-hour week compulsory for women workers in certain specified industries; another reduction of hours to fifty-eight came in 1892, and still another to fifty-six in 1910.⁸ With so large a number of women employed in silk mills and brush works, shorter hours were soon made general throughout those plants.⁹ In the cutlery and other metals factories, shorter hours were obtained by the men through their labor organizations.¹⁰

and at Belding's \$16 a week. Knitters of hosiery were making \$25. The Nonotuck figure came from the U. S. *Report of the Industrial Commission on the Relations and Conditions of Capital and Labor Employed in Manufactures and General Business*, Vol. XIV (Washington, 1901), 693 ff.

During the war-time period (1917-1920), cutlery workers were averaging around \$40 a week, according to reports, and iron molders \$7.20 a day. In the silk mills dyers were making from \$25 to \$45, and weavers around \$30. Knitters of hosiery were now averaging \$50, where before the war they made from \$20 to \$45. Men working at the brush factory made from \$28 to \$32. Women in the silk factories were said to be averaging from \$20 to \$24 weekly, and in the brush plant from \$17 to \$18. In the Appendix will be found a table showing annual average wages for all industries of the region from 1886 to 1932 from figures furnished by the Massachusetts Department of Labor and Industries. In general, of course, wages were rising throughout this period.

⁷ Numbers of children were also employed. Two hundred of the silk workers in 1875 were from 10 to 15 years of age. By 1900 the number employed in the Nonotuck was small for a textile mill of its size. In his report to the Industrial Commission in 1901 (page 697), the president said that about thirty children under 16 were employed. The company had established a night school as provided by Massachusetts law, and the children were spoken of as coming in after grammar school and in their vacations to sweep floors and trim lamps.

⁸ U. S. Department of Labor, *Labor Laws of the United States*, Bulletin, No. 166 (Washington, 1915), 181, 183.

⁹ The brush factory at first worked its men the full sixty-hour week, but soon made hours uniform. (Interview with former foreman). At the Nonotuck the men continued to work sixty hours for some time. (*Report of Industrial Commission*, XIV, 693 ff.).

¹⁰ Cutlery workers were on the sixty-hour week up to 1901 when a strike of the forgers in all three plants obtained the nine-hour day without reduction in wages. (*Massachusetts, Statistics for Manufactures, 1901*, 149). The brass works had a shorter work week by 1900. (*Ibid.*, 1900, p. 18). Brass workers were granted a fifty-hour week in 1903. (*Ibid.*, 1903, p. 405). In 1903, hours were reduced at the Norwood Engineering Com-

Recurrent crises of course interrupted these generally rising standards.¹¹ The middle nineties was an especially difficult time. In July, 1892, the Nonotuck Company had agreed to give its employees in the Florence mill a fifty-eight-hour week without reduction in pay.¹² The following year depression conditions set in, and by the latter part of 1893 the Nonotuck Company and the other two silk mills were running on part-time schedules.¹³ The next year the Nonotuck firm operated only four days a week, and cut wages, causing a strike of winders in protest. In July the running time of the Florence mill was reduced to three days a week.¹⁴ Other plants were also reducing wages, among them the Belding Silk Company, which even closed down for two periods of ten days and a month.¹⁵ In 1895 conditions had sufficiently improved for the Nonotuck Company to launch a plan for large additions to its plant capacity. There was a brief set-back in 1896, and another in 1900, when the company ran on short time and laid off many workers;¹⁶ early in 1901 it extended wage cuts to "another of its departments."¹⁷ But recovery followed again, and the industry expanded production once more.

Mechanization of production and labor-incentive plans set new tasks for workers and greatly altered the old skills. An account of some of these changes came to us from persons who had worked in the plants for many years. They told of the spool-

pany from 59 to 53 with regular pay, and five hours over-time with extra pay. (*Hampshire Gazette*, April 11, 13, 1903). The silk dyers sometimes worked only eight hours a day, good daylight being essential for the matching of shades; after-dark work was done exclusively on black. (Interview with three dyers, Corticelli Silk Co.). An act of 1911 again reduced weekly hours for women in manufacturing establishments from 56 to 54, (U. S. Dept. of Labor Bulletin, 66, p. 183) and in 1919 maximum hours were reduced from ten to nine a day and from 54 to 48 a week. The cutleries went on the 50-hour week about this time, and the iron molders, in a written agreement, obtained the 8-hour day. (Interviews with managers of plants, and Freeman, Phyllis M., *Industrial and Labor Developments in the City of Northampton, 1898-1930*, M.A. Thesis, Smith College, 1931, p. 30).

¹¹ The story is told of a depression period in the earliest days of the Northampton Cutlery Company when the workmen had to take their wages in cutlery, and then attempt to sell the knives from house to house.

¹² *Massachusetts, Statistics of Manufactures, 1892*, 461.

¹³ *Ibid.*, 1893, 385.

¹⁴ *Ibid.*, 1894, 284.

¹⁵ *Ibid.*

¹⁶ *Hampshire Gazette*, April 23, 24, 1900.

¹⁷ *Ibid.*, February 7, 1901.

printing machine used by the Nonotuck Company, and invented by Lucius Dimock, one of the original partners, about 1879;¹⁸ by an automatic feeding device it increased the number of spools printed per minute from sixty to one hundred and twenty.¹⁹ An automatic starter was also added to the spooling machine, and the machines were made quieter and more sensitive.²⁰ A former foreman recalled a threatened strike of girl spoolers when piece-rates were cut by the Nonotuck Company in 1892, and his speeding up of the machines to produce six thousand instead of five thousand spools a day to settle the issue.²¹ The speed of the spooling machines continued to be increased until by 1920 they were turning at 6,400-6,500 revolutions a minute instead of the 4,500 revolutions usual at the turn of the century.²² An automatic spooler that wound two spools simultaneously, and one carrying twelve spools, were tried in recent years, but were not used extensively, said a foreman, because good work demanded attention to a single spool at a time. The speed of the bobbins was increased in the early 1900's from 3,500 revolutions a minute to 6,000 or 6,500 when the continuous belt replaced the shaft.²³ A German automatic dye machine was introduced into one of the silk mills, reducing the number employed in the dye house from thirty-five or forty to sixteen or eighteen, but that was in the 1920's.²⁴ Grinding machines were introduced into the cutleries about 1908; in one cutlery, work formerly done by thirty-six men could now be done by nine; in another the number of grinders was cut in half. Machine finishing of blades increased the output per worker three times. The Rogers Company patented the automatic roll in 1918, eliminating both the trip hammer and the hand roll, and enabling one man to produce from 6,000 to 9,000

¹⁸ *Hampshire Gazette*, 1879. (From an undated clipping owned by a Northampton resident).

¹⁹ Interview with a former foreman of the company. Although spools were first introduced about the time that a successful machine twist was devised, in 1852, they did not come into wide use until the seventies. Prior to that time silk had been put up in skeins or wound on quills. (Interview with an employee).

²⁰ Interview with an employee.

²¹ Interview with a former foreman of the company.

²² *Ibid.*

²³ *Ibid.*

²⁴ Interview with three former employees in the dye house.

pieces where four men had formerly produced between 3,000 and 4,000. Other changes were made in "tumbling," hardening, straightening and tempering, considerably increasing output per worker on these processes.²⁵ In the first twenty years of tooth-brush-making, the heads were drilled by hand and each tuft of bristles drawn through its hole by means of a fine wire. Much of this work was done by women in their homes; a girl working in the factory could do about a gross a day, homeworkers a gross or two a week. By about 1906 the company had developed a machine from a Hungarian model which could from the outset produce some seven gross a day and later a far larger amount.²⁶

Bonus plans were tried. In 1900 the brass company was paying its employees a dividend of one per cent of their earnings for the preceding six months,²⁷ and the brush factory for a short time in 1906 offered prizes for efficiency.²⁸ Some bonus plans were adopted much later. We do not know when the Nonotuck Company introduced its system, but we find a notice changing it in 1919.²⁹ The McCallum hosiery firm put a plan into operation in 1920, giving the employees a proportional share of any increased dividends which might accrue from their increased production, and an elaborate premium system was adopted by the Rogers cutlery plant in 1923.³⁰

²⁵ Information on changes in cutlery plants from interviews with the former president of one company and the manager of another company's plant.

²⁶ Interview with a former foreman of the company.

²⁷ *Massachusetts, Statistics of Manufactures, 1900*, 109.

²⁸ Freeman, Phyllis M., *op. cit.*, 38.

²⁹ "The plan giving a two per cent bonus will be discontinued beginning on October 6, 1919.

"Starting that day a bonus of \$2.00 per week will be paid employees who keep their work up to the maximum capacity and who do not lose more than 2 hours per week. We need all possible production and it is urged that full time be given when possible. Minors who complete the full weekly time allowed by law will be paid \$1.00 a week bonus in case their lost time is not more than 1 hour per week. . . ."

³⁰ As explained by the manager of the plant, workers were paid a day rate based upon a minimum performance, or sixty "Bs" per hour. Everyone received this amount whether he completed the task or not. Anything over the sixty "Bs" entitled the worker to a bonus. The manager said the employees received the general features of the system very well, because it meant higher wages for most of them—some earning as much as eight or nine dollars a week extra; but strong objection arose to the feature of posting daily each man's efficiency record, with the names of those

While increasing the output per worker, these technical and organizational changes of the pre-war period did not mean permanent labor displacement. Industrial expansion brought additions to the labor force. From a total of two thousand workers employed in the region in 1875, the number increased to about three thousand in 1900, and to more than four thousand at the peak of employment in 1920.

LABOR RELATIONS

The labor policies of the leading industries, especially those sponsored by the Florence group of business men, followed a paternalistic pattern and were opposed to trade unions. Only in metals factories and the hosiery industry did trade unions succeed in establishing themselves.

The iron molders of the Norwood plant had a written agreement from the time the firm began operations in 1892. It was not a policy of the firm, however, for the machinists and blacksmiths were unable to win recognition for their union when they struck in 1902.³¹ The strongest and oldest unions were those in the three cutleries. In 1885 a union of knife-grinders was recognized by both of the cutleries then operating.³² The metal polishers were organized in 1886, and reorganized ten years later; the forgers formed a local about 1900, and the platers and buffers in 1901.³³ Several partially successful strikes were called between 1901 and 1907 to improve working conditions and secure full union recognition. In 1901 the forgers of all three cutleries were granted a nine-hour day with no reduction in wages.³⁴ The following year the metal polishers of the Rogers plant struck winning a compromise agreement and in 1902 the Rogers Company grinders called a strike with similar results.³⁵ The cutlery unions followed these strikes with the organization of an Allied Metals Workers' Association, establishing through it an inter-union committee with power to call strikes under certain speci-

producing less than the standard marked in red. This, it was felt, upset morale and offset some of the gains made through increased efficiency.

³¹ *Massachusetts, Statistics of Manufactures, 1902*, 34.

³² Freeman, Phyllis M., *op. cit.*, 40. ³³ *Ibid.*, 40-41.

³⁴ *Massachusetts, Statistics of Manufactures, 1901*, 149.

³⁵ *Ibid.*, 1902, 34.

fied conditions.³⁶ Until the crisis of 1907 union shops were maintained in the cutlery plants. But in December, 1906, the handle-polishers of the Clement plant struck, demanding the wage-rates paid in the other cutlery plants,³⁷ and they were supported by the other Clement crafts who struck in sympathy. The company imported strike-breakers from an agency in New York³⁸ and refused to deal with the unions. Depression conditions weakened the strikers, and other cutlery unions did not call sympathetic walk-outs as the strikers apparently expected. The struggle seems to have been a long one, for not until a year had elapsed were the strikers returning to work, and then under open-shop conditions. This seems to have marked the end of union influence, for the other two cutleries also announced open shops,³⁹ and from this time on union committees were no longer recognized.⁴⁰

The cutlery firms were not alone in experiencing labor unrest in the early 1900's. The silk mills were also affected at this time. For a few years after 1900 the weavers and dyers of the Belding Company were organized.⁴¹ In January, 1902, one hundred spoolers of the Nonotuck Company staged a successful three-day stoppage. The local newspaper declared this to be the first strike on record in the Florence mills;⁴² however, we know there had been a strike of winders in 1894, and there may have been others. In 1905 the winders and braiders declared a strike, the winders against a proposed wagecut, and the braiders in order to secure a wage increase. This strike lasted three weeks, resulting in a wage compromise settlement.⁴³

No union was organized at the Nonotuck plant until the knitters joined the Federation of Hosiery Workers in 1920 when a hosiery department was established in the mill. The workers of

³⁶ Freeman, Phyllis M., *op. cit.*, 42.

³⁷ *Hampshire Gazette*, December 31, 1906.

³⁸ *Ibid.*, February 8, 1907.

³⁹ *Ibid.*, December 21, 1907; January 9, 1908.

⁴⁰ Interviews with the managers of the three plants.

⁴¹ Freeman, Phyllis M., *op. cit.*, 42.

⁴² *Massachusetts, Statistics of Manufactures*, 1902, 34, and *Hampshire Gazette*, January 21, 1902.

⁴³ *Massachusetts, Statistics of Manufactures*, 1905, 509.

the Belding Company, led by the weavers, organized a branch of the textile workers' union in 1921, the only local of silk workers in the town. The union was not, however, recognized by the management.⁴⁴ At the McCallum hosiery plant a union among the knitters was started in 1913, and in May, 1915, it called a strike for the restoration of a wage-cut made six months before. The women in the throwing department joined the men and the demands of the strikers were granted.⁴⁵ In November, 1917, the knitters of the company's Northampton plant joined in a strike of knitters in the other plants of the company at Philadelphia and Providence, winning higher wages, the nine-hour day and recognition for the union.⁴⁶

Instead of collective bargaining extensive welfare programs characterized the labor policies of the silk mills and other Florence industries. There had been company-owned houses as far back as the oldest worker could recall. Ira Dimock, president of the Nonotuck Company, said in 1901 that his company owned fifty-seven workers' houses.⁴⁷ Home ownership was also encouraged. Boarding houses were opened in both Florence and Leeds to provide not only room and board for the girls who came from a distance, but also supervision of their conduct. The Nonotuck Company's boarding house in Florence could accommodate sixty although it usually housed a smaller number. The girls were expected to go to their rooms at nine-thirty and lights were turned out at ten. This rule, reported the older workers, was rigidly adhered to; to be a minute late brought a reprimand. For a dance or concert the closing hour was eleven. This close supervision was a consistent company policy. "We put the house up at a good deal of expense. . . . We say to parents and brothers who live at a distance, 'You can safely let your sister or your daughter come down here to the Nonotuck Mills. She is looked after, and is required to be in at suitable hours. We have an interest in her.'"⁴⁸

⁴⁴ Freeman, Phyllis M., *op. cit.*, 106, 107 and 40.

⁴⁵ *Hampshire Gazette*, May 28, 1915.

⁴⁶ *Ibid.*, November 3, 6, 1917.

⁴⁷ U. S. *Report of the Industrial Commission*, XIV, 693 ff.

⁴⁸ *Ibid.*

Among the employees who had experienced the old days in the Nonotuck mills, it was agreed that a good moral character was a first qualification looked for when workers were hired for the mill; the evidence of the lack of one was a first reason for firing them. Ira Dimock, the company's president, said in 1901: "If there should be a black sheep among our girls, they would themselves make it too hot and she would have to get out. The morality of the help is of the highest kind."⁴⁹ Every girl was regarded as a "lady," they said, and a boy who showed disrespect would be reprimanded. New employees received a list of rules regarding promptness, quiet, attention to work and neatness, which they were fully expected to observe. Lectures, concerts and dances in the community hall, were sponsored and chaperoned by the company. Such affairs were community affairs, looked back upon with praise and pleasure by many of the retired employees. The paternal attitude of the employers was remembered by some with warmth of feeling. Said a man who had been in the mill forty years: "In the old days one of the bosses came to visit you if you were sick, and he never came empty-handed."⁵⁰

The Nonotuck Company began in the 1880's to provide for its employees in slack seasons by manufacturing for stock, spreading work and giving heads of families outside tasks at mending fences, repair work and cutting down trees.⁵¹ The Norwood firm and the brush company inaugurated pension plans in the early 1900's.⁵² The brush company's pensions were not awarded automatically, but at the company's discretion as a reward for long and faithful service, to employees "who had broken down in the service of the company."⁵³ A few years later this same firm began to pay Christmas bonuses, the amounts varying with length of service, and in the post-war period vacations with pay were

⁴⁹ U. S. *Report of the Industrial Commission*, XIV, 693 ff.

⁵⁰ Freeman, Phyllis M., *op. cit.*, 37. This benevolent relationship was not confined to the Florence group of industries. The Clarks of Paper Mill Village had a similar regime, and it was said of Alexander McCallum, founder of the McCallum Hosiery firm, that he was known to every employee in the mill in the early years. Meager records of the old Hayden and Sanders cotton plant suggest similar policies.

⁵¹ Interviews with long-service employees.

⁵² *Hampshire Gazette*, February 9, 1901.

⁵³ Freeman, Phyllis M., *op. cit.*, 38, 39.

given to employees who had been with the firm a number of years.⁵⁴ The Nonotuck Company installed a pension system some years later. Mutual benefit associations were established by several employers—at the Norwood in 1900, for the machinists of the brush company in 1902,⁵⁵ and for all of their employees about fifteen years later.⁵⁶ Several firms carried group insurance for their employees, beginning about 1916.

Careful workmanship and quality of product were very much stressed by the Florence group of companies, and prestige was accorded those employees who had seen long service. Several firms made special efforts to encourage a stable labor force. The brush company had its "Twenty Year Club,"⁵⁷ and rewarded faithful service with bonuses and vacations with pay; the Norwood Company gave bonuses and honors to those who were in its employ for many years. The Nonotuck mills had so successfully pursued this policy, that in 1922 there were 125 living employees who had been with the company more than twenty years;⁵⁸ many more had served from ten to twenty years. Children followed their parents into the plants, sometimes several members at a

⁵⁴ *Ibid.*, 114.

⁵⁵ *Massachusetts, Statistics of Manufactures, 1902*, 77.

⁵⁶ The brush company's Christmas bonus plan provided \$5 for employees of one or two years' standing, and larger amounts up to \$25 for those in service for longer periods. Around 1919 employees who had completed twenty years with the company were given a gift of \$100. Two weeks' vacation with pay was given employees who had been with the company ten years or more; three days' vacation with pay, for three years of service, etc. (Freeman, Phyllis M., *op. cit.*, 114). The brush company's mutual benefit association provided for contributions of 10 or 20 cents weekly; a sick benefit was paid of \$5 or \$10 for 26 weeks. (Interview with former employee of company). A similar association was started at the McCallum hosiery mill in 1909, but with a different dues system. The benefit association of the Norwood plant resembled the brush company's; dues of 10 cents a week were deducted from pay envelopes, and the benefit of \$5 a week was paid for not more than ten weeks. (Freeman, Phyllis M., *op. cit.*, 49).

⁵⁷ Interview with a former foreman of the company.

⁵⁸ The Corticelli Silk Company (formerly the Nonotuck) issued a booklet in 1922 listing their employees by number of years of service. The record of those of over twenty years shows:

	<i>No. of employees</i>
Over 40 years	10
35-40 years	25
30-35 years	34
25-30 years	22
20-25 years	34

time working there, occasionally to the third generation. When women married and stopped working regularly they were not entirely lost to the company, for they were often called upon in rush periods to help out. "We frequently have six or eight or ten or a dozen of them that come in and work perhaps six hours a day, more to accommodate us than anything else—women that grew up with us," the president of the company told the Industrial Commission in 1901.⁵⁹

Workers who had been with the companies in the "old days" referred to their connection with pride; it apparently carried social recognition. One aged former employee said of the Nonoctuck that when away from Florence she used to hesitate to tell people that she worked in a factory, but "in Florence it was different because everyone knew what a fine place it was."

From these same older workers there comes the impression that the Florence of the "old days" was very different from the modern industrial town. The impression is borne out by the many civic institutions that were established there in the nineteenth century, and the varied social and educational activities in which there seemed to be wide participation. Even these were closely related to the community's industrial development: schools, religious society, kindergarten, institution for adult and vocational education, library, community center, were founded and supported by men such as Samuel L. Hill, A. T. Lilly and Lucius Dimock, all of them leading figures in the nineteenth century Florence business group.

TRENDS IN LABOR POLICIES

The region's labor policies were marked by paternalism and opposition to trade unions, policies very common in textile towns at the time. Attempts at self-organization by textile workers everywhere met with rebuffs, and in the nineteenth century made little headway. Also it was widely regarded as a function of textile companies directly to provide housing and other kinds of welfare programs for their employees. Local policy went somewhat beyond general policy, however. For one thing, there was the em-

⁵⁹ U. S. *Report of the Industrial Commission*, XIV, 693 ff.

phasis placed upon the relation of the employee to the company's welfare. Great stress was laid, by the Florence group of industries especially, upon a stable labor force and long service with the companies; with this went a definite effort to inculcate pride in the companies' products and in a high quality of work. Various rewards and incentives were used, and apparently with considerable success. There was also great emphasis placed upon building up community institutions. These were not specifically provided for the employees of the mills, as is generally the case in the typical industrial town, but had wider participation. It was the special stress placed on these latter policies that distinguished the Florence group of industries.

CHAPTER VIII

THE REGION IN RECENT DECADES

The time came when local ownership of Mill River industries was almost altogether supplanted by absentee ownership. This happened very gradually, and carried with it at first no policies strikingly different from those locally long in vogue. A few plants had come under outside control before the close of the nineteenth century, some of them in the period following the depression of the nineties, when many companies in the country were changing hands.

Belding Brothers Silk Company had been the first large concern, in no way connected with local enterprises, to establish a branch plant in Northampton. In 1876, twelve years after it began operations in Rockville, Connecticut, the company purchased a Northampton factory formerly occupied by a pocket-book works, and began the manufacture of silk and machine twist.¹ Northampton citizens, anxious to see the new company established, raised \$15,000 with which to pay off a part of the mortgage on the building.² Production at the Northampton plant expanded steadily. The mill was enlarged twice within five years after it was opened, and silk fabrics were gradually made its chief product. In 1882 the Belding Brothers incorporated the company in Connecticut at a capital of \$650,000, increased to a million dollars in 1886. A branch was established in Montreal in 1876, another in San Francisco a few years later, and still another in Belding, Michigan.³ In 1909 the company again increased its capital, this time to three million dollars;⁴ in the same year additions

¹ Belding Brothers and Company, *Fifty Years, 1863-1913*. The story is told that two of the Belding brothers started out in the middle west in the 1850's with a few dollars capital to peddle silks purchased by a third brother from an eastern manufacturer. Some ten years later they had established the company in Connecticut.

² *Industry*, XXIII, April 6, 1929.

³ Belding Brothers and Company, *Fifty Years, 1863-1913*.

⁴ *Ibid.*, 26.

were made to the Northampton plant.⁵ By this time the company was operating eight plants in five different cities.⁶

Outside investors acquired several local firms. The Florence Machine Company, manufacturers of sewing machines and oil stoves, was absorbed by the Central Oil Gas Stove Company in 1891. The Norwood Engineering Company was merged with a Holyoke machine works in 1896. William A. Rogers, Ltd., purchased the E. E. Wood cutlery works and continued the manufacture of cutlery under local management. A small box factory which had operated in Northampton since 1880, was purchased by a box company from Connecticut in 1903 and the business enlarged.⁷ In 1920 the International Silver Company of Meriden, Connecticut, bought the old sewing machine property and opened a branch plant.

At what date the Nonotuck Silk Company passed from local to a predominantly outside control it is impossible to say. Management remained in the hands of the old local families until the merger with Brainerd and Armstrong in 1921. The first outsider on the board of directors was B. A. Armstrong, of the latter firm, who took his place in 1877. From that time on there were always Armstrongs on the board. J. P. T. Armstrong, now a vice-president of the Belding-Hemingway Silk Company, was appointed in 1907; in 1924, B. A. Armstrong was made chairman of the board of directors, and J. P. T. Armstrong, treasurer.

The Florence Manufacturing Company had become a very large business. In 1924 when the name was changed to the Propyl-lac-tic Brush Company, it had a working capital of more than two million dollars and operated plants in Florence and in Montreal, Canada.⁸ When outside investors came to predominate in the ownership of the company, we cannot be sure. In 1924 a Northampton man, George H. Burr, was chairman of the board of directors, and William Cordes was president.

The McCallum Hosiery Company apparently began without the aid of large capital, but it soon grew into an important busi-

⁵ *Industry*, XXIII, April 6, 1929.

⁶ Belding Brothers and Company, *Fifty Years*, 26.

⁷ *Industry*, XXIII, April 6, 1929.

⁸ *Moody's Manual of Industrial Investments*, 1927, 498-9.

ness. It was founded by Alexander McCallum, who, in partnership with William Constable, had begun to experiment with hosiery manufacture in the eighties. It was necessary for them to bring machinery and skilled workmen from England and the Continent, since little domestic manufacture had as yet developed in America and skilled workers were difficult to find.⁹ The firm even incurred a fine from the government for alleged illegal importation of foreign workers, but the case was finally settled in McCallum's favor in the courts.¹⁰ In 1897 McCallum sold out his interest in the Holyoke company, and became for a year superintendent of Belding's small hosiery department in Northampton. In another year, he, his son George, and Edgar F. Crooks, a former manager at Beldings, formed the McCallum Hosiery Company, capitalized at \$50,000. The company purchased Constable's business in Holyoke, bought Belding's hosiery machinery, brought in new machines from England and began operations in 1899.¹¹ Capital was doubled within five years, additions were made to the dye house and the factory and the old tack factory in Florence was bought and converted into a throwing mill organized as the Northampton Silk Company.¹² Further additions were made to the mills in 1909 and again in 1910.¹³ From that time on expansion was rapid. The company purchased a Providence plant in 1911, organizing it into the De Luxe Silk Hosiery Company,¹⁴ purchased a Philadelphia mill in 1917, and opened a throwing mill in Holyoke in 1919.¹⁵ Its Northampton mills were by this time employing 281 workers.

It is evident that by 1915 Mill River enterprises were no longer predominantly local in ownership, even if in management they seemed little changed. The first generation of local business lead-

⁹ The McCallum Company was not an outside firm in its origin. We treat it here because it came after the nineteenth century local-enterprise period. Also it seems to have soon attracted abundant capital, for its expansion was very rapid, as we see by the plants it established outside the region, as well as the growth of the Northampton mills.

¹⁰ Stone, Orra, *History of Massachusetts Industries* (Boston, 1930), III, 170.

¹¹ Massachusetts, *Statistics of Manufactures*, 1898, 297; *Ibid.*, 1900, 32.

¹² *Ibid.*, 1904, 218; 1905, 509; Freeman, Phyllis M., *op. cit.*, 27.

¹³ *Industry*, XXIII, April 6, 1929; *Hampshire Gazette*, December 9, 1909.

¹⁴ *Hampshire Gazette*, May 15, 1911.

¹⁵ Freeman, Phyllis M., *op. cit.*, 92-93.

ers had died long since; but not a few of the new generation were sons and grandsons, or local men who had grown up with the companies. A strictly outside firm like Belding's had been in the region so long as almost to be stamped with its pattern.

WAR-TIME EXPANSION

This was the situation when, under the stimulus of war-time demand, unprecedented expansion occurred in the leading industries. Because it was a textile center the region early experienced this general expansion. Before America's entry into the war there had been huge orders from the warring countries of Europe. American silk exports nearly trebled in value between 1914 and 1917.¹⁶ After 1917 even greater expansion occurred. In the region the value of silk goods almost doubled in the three years before 1917, and by 1920 the value of output was two and one-half times the 1914 figure.

At one point the Nonotuck Silk Company,¹⁷ feeling the shortage of skilled workers, was offering bonuses to those employees who would bring experienced workers to the mill.¹⁸ This company sold to the government for powder bags all the spun silk it could produce. When the German supply of embroidery cottons was cut off, it added to its products cotton yarn, skeined, balled and dyed in Florence; so great was the demand for these goods that night work until ten and eleven o'clock was common. Even wool yarns were produced for a time. A hosiery mill was built by the Nonotuck Silk Company in 1920 and hosiery manufacture begun, a very different matter from the first attempts by the company in the 1880's. Then four or five men worked laboriously on the first crude machines to produce a few silk stockings for a strictly luxury trade; early in 1921, fifty or sixty knitters were said to be averaging five hundred dozen pairs a week, and the

¹⁶ Freeman, Phyllis M., *op. cit.*, 90.

¹⁷ Information on the changes described for the war and post-war periods are chiefly from interviews with long-service employees—former foremen, dyers, and others who had worked for the companies many years; also some scattered material from the directors' minutes of the Nonotuck Silk Company. Unless otherwise stated, the facts are drawn from these sources.

¹⁸ Copy of notice given to employees concerning bonuses, as well as interviews with former employees.

output was increasing. In 1923 an officer of the company thought the future of hosiery looked very promising. The Nonotuck Silk Company for some years had shown a growing interest in advertising. An appropriation of a few thousand dollars for magazine advertising in 1914 had been increased by many times that amount in 1923.¹⁹ Improvements were made in buildings and machinery in 1922, and new machinery was purchased in 1923.

The Belding Company was also expanding; by 1918 its capital stood at five million dollars and its Northampton plant was producing to capacity. The McCallum Hosiery Company, we saw, had opened two new mills in 1917 and 1919. The brush company received large government orders for army supplies, and expanded production to its maximum capacity. In the early 1920's the company's labor force was larger than at any time before; much of the time the plant was operating on three shifts. In 1922 the company established in Shanghai its own plant to dress raw bristles, where heretofore it had purchased them in New York and London.²⁰

There was no such expansion in the smaller Mill River factories. Numerous changes were occurring in the production of cutlery, and per capita output was rising, but the total value of product remained at about the same level until the establishment of the International Silver Company's plant after the World War.

¹⁹ Trade journals and numerous magazines were used; silk cabinets made up for display in schools and shops showed the stages of silk manufacture; a needlework magazine was maintained for several years before the war period. Instruction books, hosiery booklets, exhibitions at the International Silk Exposition, style shows, and even for a year or two a large electric sign on Broadway, show the wide variety of methods employed. It is interesting to know that some of the old Whitmarsh mulberry trees were still cultivated and cocoons raised to use in the display cabinets showing the stages of silk making.

²⁰ *Davison's Silk and Rayon Trades* (1919), 114.

The brush company also launched out on an extensive advertising campaign, features of which will be remembered by many. Articles on dental hygiene appeared in magazines and the press. In one year (1915) medals and prizes were offered to public school children for essays on the care of teeth; 120,000 essays were received, the company reported. (Florence Manufacturing Company, *Fifty Years of Brush Making: 1866-1916*) About 1920 an offer in a metropolitan newspaper to give away a child's tooth brush to children born in that year resulted in 130,000 applications at the Florence office. (Interview with former foreman of the company). Dental clinics and tooth brush drills were established in schools. (Stone, Orra, *op. cit.*, III, 42).

One change was the substitution of stainless for carbon steel, first introduced about 1914 in the local plants, but not used extensively for some years.²¹ Changes were also made in the materials used for handles. The Northampton cutlery plant began to make fine table ware in place of the kitchen and less expensive table cutlery formerly manufactured.²² All of the local firms were now chiefly occupied in supplying unmounted blades to large silver platers in New England and New York. The Norwood Engineering plant had turned to making gun carriages during the war, employing about 150 men,²³ but it did not remain prosperous for many years. Even the basket shop experienced a brief period of revival between 1915 and 1920, before final decline set in.²⁴

²¹ Interview with manager of a cutlery plant.

²² Interview with the president of the company. Carbon steel, we were told, sold for from 4½ to 7 cents a pound, while stainless, at first one dollar a pound, was still as much as 30 cents in 1932. (Interview with manager of one of the cutlery plants).

²³ Freeman, Phyllis M., *op. cit.*, 93.

²⁴ Number of items made by the Williams Manufacturing Company:

1913: Drums	9,557,644	1918: Drums	15,516,449
Baskets	8,200,432	Baskets	8,805,022
Cases	2,993,310	Cases	2,941,950
	20,751,386		27,263,421
1914: Drums	11,250,264	1919: Drums	15,360,291
Baskets	6,173,046	Baskets	7,361,531
Cases	1,874,290	Cases	4,966,287
	19,297,600		27,688,109
1915: Drums	9,546,784	1920: Drums	18,322,828
Baskets	5,332,150	Baskets	10,975,960
Cases	1,790,031	Cases	6,280,311
	16,668,965		35,579,099
1916: Drums	9,221,933	1921: Drums	11,666,285
Baskets	6,339,725	Baskets	4,714,370
Cases	2,802,954	Cases	4,016,135
	18,364,612		20,396,790
1917: Drums	11,963,014		
Baskets	7,531,835		
Cases	2,223,356		
	21,718,205		

POST-WAR ADJUSTMENTS

The region experienced acutely the industrial readjustments of post-war America. Its output rose to new heights during the business boom of 1919-1920, only to drop again with the sharp country-wide depression of 1921. The next years, 1922 to 1929, were turbulent for the region as they were for the country at large. In general it was a period of rising prosperity in the United States, but special conditions and exceptions are seen. There was a great increase in building construction, and automobile manufacture and other so-called "new industries" expanded enormously. Conditions in agriculture, however, were anything but prosperous.²⁵ Some industries—and the region's principal industry, silk, was among these,—whose production had been stepped up by war-time demand to a point far beyond normal, now faced a sudden contraction of markets. Also silk mills had multiplied in the country during the war: 400 new establishments had begun operations in the five years between 1914 and 1919, compared with 550 for the thirty-five years prior to 1914.²⁶ This over-expansion and over-investment upset the silk market and intensified competition. Cotton and rayon were also battling for markets. Some cotton companies were putting out silk and mercerized threads which offered serious rivalry to spool silk. Rayon and celanese fabrics were making their bid as substitutes for silk. One way out of the intense competitive situation of the post-war period was found in mergers; the number rose sharply between 1921 and 1929.²⁷

A merger was one of the first important changes to occur in Northampton after the war. In 1921 the Nonotuck Silk Company with its several Florence mills, and the Brainerd and Armstrong Company owning three plants in Connecticut, culminated their long years of close association by coming together and forming the Corticelli Silk Company, incorporated in Connecticut. The years that followed showed the expediency of such a step, in

²⁵ Cf. *Recent Social Trends in the United States, Report of the President's Research Committee on Social Trends* (New York, 1933), I, 22 ff.

²⁶ U. S. Bureau of the Census, *Monograph 3*, 1924, Thorp, W. L., "The Integration of Industrial Operations," 1924, p. 58.

²⁷ *Recent Social Changes, op. cit.*, I, 241.

view of general conditions in silk. One of the first moves of the new company was to discontinue some sizes of sewing silk and reduce the number of shades. The manufacture of cotton thread was also discontinued in 1921, and negotiations were begun for the sale of the cotton machinery. In 1924 the worsted yarn business began gradually to be withdrawn from the market. The firm now began the manufacture of silk goods for certain special purposes such as fish lines and insulation for electric fixtures. Experimentation was carried on to improve the quality of "artificial silk." A rayon thread was also attempted. Silks for knitting and embroidery were made and excellent sales were reported.

The crisis of 1921 accentuated the difficulties under which the plants were laboring. In 1923 it was said of machine twist that competition was the hardest in years. New concerns were reported to be instituting aggressive under-selling policies. Campaigns were undertaken in which at least one local firm joined, to combat the substitution of mercerized cotton for spool silk.

In the middle twenties conditions for local silk manufactures were said to have improved. The Corticelli Silk Company paid regular dividends on preferred and common stock from 1925 to 1927. All its looms were running, and the fabric outlook was said to be excellent. For a time optimism was general. All the mills continued to seek ways to increase the output per worker and decrease costs. The Belding Company in 1924 increased the number of looms per worker from two to three,²⁸ cutting the piece-rate. The Corticelli Silk Company effected economies by consolidating some of its branch offices; the spool shop and lumber yard at Leeds were closed, and the iron shop at Florence; advertising appropriations were cut. Automatic gluing machines were purchased for the box shop to reduce labor costs; fewer hosiery inspectors were employed; economies were effected in repair work, and efficiency systems were introduced. The wages of knitters and other employees at the Leeds mill were cut in 1924, tenement rents were revised upward in 1925, and the pension system was changed downward in 1926. From 1925-1927 savings

²⁸ *Hampshire Gazette*, March 29, 1924.

were reported in the manufacturing costs of spool silk, machine twist and spun silk.

In 1926 the Belding Brothers Company and the Hemingway Silk Company effected a consolidation, the second large merger among the silk firms in the region since the World War.²⁹

Other industries were also making adjustments. The brush company expanded steadily up to 1927, when it was said that market conditions forced a series of economies and changes.³⁰ A drastic efficiency system was introduced, per capita output increased, and wage-adjustments were made. Cutlery output continued to rise, with only one slight recession, until 1929.³¹ Forging and metal polishing were still further mechanized, and more workers were displaced. It was estimated that the Northampton Cutlery Company produced in 1930 about one-third again as much as in 1920, with half the number of workers.³² The Norwood Engineering, the brass works and the casket shop flourished right up to 1929. In 1929 the crash came, dislocating business everywhere. The next year the Corticelli Silk Company sold its spun silk department to an outside concern; economies were again effected. In some cases attempts were made to cut labor costs by running double shifts, but orders did not keep pace. By 1931 advancing depression made matters steadily worse for all local firms.

The more important changes came with the consolidation of four more companies. The small branch plant owned by Wm. A. Rogers Company changed hands when in 1929 the assets of that company were taken over by the Oneida, Ltd., capital \$9,000,000. In 1930 the Pro-phy-lac-tic Brush Company merged with the Lam-

²⁹ According to Moody's *Manual of Investments*, 1927, 678, the new Belding Hemingway Company was incorporated under the laws of Connecticut. The Hemingway Company was founded in 1849 and incorporated under the Connecticut laws in 1917. The company manufactured spool silk, silk fabrics, embroidery silk and hosiery under the trade names, Belding, Hemingway and Richardson. The company had eleven plants at the time of the merger, located at Rockville, Putnam and Watertown, Connecticut; New York; Northampton, Massachusetts; Belding, Michigan; Petaluma, California. The combined plants had a floor space of 880,256 square feet.

³⁰ Interview with a former foreman of the company.

³¹ See Table IV, Appendix.

³² Freeman, Phyllis M., *op. cit.*, 174.

bert Company, maker of "Listerine" products, forming the Propy-lac-tic Brush Corporation. At the time of the merger the brush company was the largest non-textile factory in the region. Also in 1930 the Propper Company of Elmhurst and Long Island City, Long Island, acquired the assets of the McCallum Company,³³ under a plan which gave to the McCallum stockholders one-ninth of a share of preferred, five-eighths of a share of common and about \$1.38 in cash for each share of McCallum common held. The new organization became the Propper-McCallum Hosiery Company, with headquarters in New York.³⁴ In 1932 there came the most important consolidation; the Belding-Hemingway Silk Company and the Corticelli Silk Company, after a long period of negotiations, were merged, and the Belding-Hemingway-Corticelli Company was formed. The Corticelli Company had now become merged with the company that had been one of its most formidable competitors.³⁵

LABOR IN THE POST-WAR PERIOD

Apparently workers did not adjust easily to the changes of the 1920's. In some of the Florence industries it was a new management that instituted the changes, and employees who had worked for the companies a long while, unaware of how general were the problems they were meeting, felt them to be associated with the change from the old to the new. New welfare plans, inaugurated by the companies after the war, were often commented upon unfavorably, rather than with the warmth accorded the welfare activities of the "old days." Workers spoke disapprovingly of the employment of a welfare worker in 1919, feeling that she had come to "teach them how to live," one woman describing such work as "sentimental rubbish." Nevertheless, for a year or two, dances and sleigh rides were sponsored, parties organized, recreation rooms decorated, and a general attempt made to revive the "community" atmosphere of former days. Mills began to introduce cafeterias and to provide free tea and coffee with moderate priced lunches. Moving pictures, spon-

³³ *Hampshire Gazette*, January 31, 1930.

³⁴ *Moody's Manual of Industrial Investments*, 1931, 913.

³⁵ *Ibid.*, 1933, 2760-1.

sored by the mills, were for a time given in Florence, Leeds and Haydenville. The Corticelli Company's boarding houses, which for some years had been operating at a loss, were closed in the middle twenties. The company still owned more than a hundred tenements, some of which had been built in the war time to accommodate the additions to the labor force. Employees were assisted in the purchase of homes of their own. During the war period the Nonotuck (later Corticelli) Company also instituted a pension system and organized a voluntary benefit society which most of the employees joined.³⁶ The brush company had always stressed welfare policies, and its plans were increased after the war. The Corticelli Company established a central employment office and trained personnel management to replace the former methods of hiring and firing by individual foremen, and again the workers reacted unfavorably, seeming to look upon the change as another departure from the old and tried methods of the past.

There was dissatisfaction, such as we usually find among workers, when machines are speeded up and per capita output is increased. To the older workers the new efficiency methods, speed-up and quantity production seemed to have replaced the old emphasis upon quality and careful workmanship. They pointed to the shortening of the apprentice period for a spooler in one of the silk mills from three months to from four to ten weeks; they told how rules regarding lateness, attention to work and so on, were more strictly enforced in several mills, to the neglect, they felt, of the old emphasis upon careful workmanship. In the dye house of the Corticelli Company they said that helpers were discharged after the introduction of the dye machine, putting a greater burden upon the men who remained. Several of the older dyers felt the work was distinctly inferior after the adoption of the machine—a common reaction of expert workmen when their

³⁶ The pension plan provided that an employee who had served thirty years and reached 65, and was incapacitated for further work, was eligible for an amount not to exceed 50 per cent of his average earnings for the previous five years. The sickness insurance society provided for a contribution of 10 cents a week, which was matched by the company and entitled the worker to \$7.50 a week for 10 weeks of illness. At the death of an employee of more than five years' standing his family received \$500. In the late twenties the plan was limited to those already pensioned.

old hand processes are mechanized; they said each man now had more work than he could properly handle, and the demand for speed caused them to crowd the machine with too much silk.³⁷ Of no change did they speak with stronger feeling than of the "efficiency systems." After the merger of the Nonotuck Company and the Brainerd and Armstrong Company, three or four efficiency experts succeeded one another, and their stop-watch methods were spoken of with hearty irritation. Craftsmen of many years standing felt these experts were but theorists who could know little of the practical running of the mill; their watchfulness made many of the workers nervous, and their suggestions were frequently described as ridiculous. A favorite story was that of an expert who wished the dyers to throw the skeins of silk, loose, into the vats instead of hanging them carefully on poles and then lowering them into the liquor. When the head dyer, who had called the others as witnesses, asked, "Shall I do it?" the expert became worried, and then was told that it would have been impossible to untangle the mass once the skeins had been thrown into boiling water. A grievance of another kind was that of the spooler who deplored the efficiency system which caused the silk to be removed as soon as it was spooled; she had always enjoyed the contemplation of a shining pile of bright colored spools at the end of a day's work, and felt that the new method deprived workers of their former sense of accomplishment. When a timing system was tried with the spoolers, the girls struck and forced the removal of the expert from their department. It was said that about three hundred workers in the Florence Manufacturing Company were turning out in 1930 as great a volume of goods as had some eight hundred ten years before. The Belding Company had more looms in 1929 than during the war, yet there were fewer employees; at first the number of looms per operator was increased from two to three; by 1930 some operators were handling four looms.³⁸ One man, formerly a foreman, expressed

³⁷ These sentiments of the workers cannot be considered to have had any real bearing on the question of quality of output; we have no information on that point for these companies. They are interesting to show the way workers were reacting to the technological changes occurring so widely during the 1920's.

³⁸ Freeman, Phyllis M., *op. cit.*, 173.

the opinion that whenever an efficiency expert was hired, there was an immediate decline in amount and quality of product because of the resentment of the workers who at once ceased taking pride in their work; employees of several plants voiced the same opinion.

Discontent with efficiency methods was given³⁹ as one of the chief causes of a strike at the Corticelli Silk Company and the formation of a union in 1923. The dressing and filling departments at Leeds walked out in May, 1923, and a representative of the textile workers' union came in to organize a local. The union demanded an increase of fifteen per cent in wages of less than \$18 a week and ten per cent for those earning \$18 and over. The company, still vigorously opposed to trade unions, refused to negotiate, and when, on June 4, all of the Leeds and Haydenville workers struck, strike-breakers were brought in.⁴⁰ The company took an adamant stand, and after two or three months the workers began to return to the mills on the company's terms. The strike was not only lost, but wages were soon reduced still further. At the Belding Brothers mill the union, formed in 1921, called a strike in 1924 when the number of looms per worker was increased from two to three, and the piece rate was cut, but the strike was unsuccessful and after a few weeks the workers were returning without any gains.⁴¹ The hosiery workers at the McCallum mills had been organized and their union recognized by the company for a number of years. In 1919 the company established a new organization alongside the union, the so-called "Industrial Democracy" plan, a scheme widely advertised at the time as a panacea for labor difficulties, and an early form of today's employee-representation plans.⁴² At about the same time the company began publication of a shop paper, and instituted

³⁹ *Ibid.*, 197.

⁴⁰ Freeman, Phyllis M., *op. cit.*, 184.

⁴¹ *Hampshire Gazette*, March 29, 1924; Freeman, Phyllis M., *op. cit.*, 185-86.

⁴² Under this "Industrial Democracy" plan, an organization was formed patterned on the federal government, the executive officers constituting a cabinet, the superintendents and foremen, a senate, and delegates from the workers, a house of representatives. The functions and powers of the various bodies were not similar to government bodies, however.

various methods for increasing efficiency, including a new bonus system. Responses to new efficiency methods were similar to those found in other mills,—unrest under the pressure to increase output, but gradual adjustment to the changes. The new organization introduced by the company, however, lasted only a short time. Very soon after its formation the labor representatives voted themselves an increase in wages, which the company, in the shop paper, said was not justified by the dividends.⁴³ The organization lingered on for about three years and then was abolished.⁴⁴

The post-war period was also a period of decreasing employment. The number of wage earners in the region had reached its highest point in 1920, with a total of slightly over four thousand engaged in manufacture. After that time a decline began, the number dropping to about 3,200 in 1924, increasing slightly in the next two years, and then declining steadily. In 1929 the average was about one thousand below that of 1920, a loss of some twenty-five per cent.⁴⁵ In addition, according to the accounts of workers, work became increasingly irregular, and short-time employment more frequent. This, be it remembered, was still during the height of the prosperity period of the late 1920's.

RECENT CHANGES

The principal Mill River plants, now linked closely with large outside corporations, experienced to the full the turbulent changes of the War and post-War periods as these were being felt throughout New England and to a considerable extent throughout the country: markets first expanding abnormally and then violently contracting; high profits and then harsh competition; the introduction by management in the immediate post-War years of employee representation plans and other forms of personnel work, followed by the more successful campaign to cut labor costs by speeding up machines and introducing new management techniques; passive resistance by workers and attempts, chiefly unsuccessful, at self-organization; moderate increases in wage rates

⁴³ *McCallum Hosiery Company's Shop Magazine*, July 24, 1920.

⁴⁴ Freeman, Phyllis M., *op. cit.*, 194.

⁴⁵ See Appendix, Table III.

alongside irregular employment and a decrease of the total industrial working force. Heretofore the region's industries had suffered temporary set-backs in periods of depression, and then moved on to still broader expansion. Now in the 1920's when there was no depression (once the crisis of 1921 had been passed), expansion had not only ceased, but production was contracting. These changes were especially noticeable, coming as they did on the heels of the World War boom.

CHAPTER IX

THE DECLINE OF SILK

The peak of industrial production in the Northampton region was reached between 1920 and 1923. Thereafter, with some fluctuations, total production declined.¹ Possibly the course of the region's industrial history during the 1929 depression and after would have been similar to that of other New England textile centers if the textile mills had remained. But in 1931 the Belding-Hemingway Company announced that the company's Northampton plant, which had been running on part-time for two years, would be closed for at least six months, and it was never reopened.² In 1932 a merger was completed between the Corticelli and Belding-Hemingway companies, and in the same year the Corticelli plants in Northampton were closed and all manufacturing operations removed to the corporation's Connecticut mills.

These were not the only shutdowns in the region. The emery wheel concern had failed in 1913 and its plant was closed. The oil stove factory, originally the prosperous sewing machine company, had been closed in 1917, and all operations removed to the company's Gardner, Massachusetts, plant. The basket works had begun to decline about 1923; paper cartons had replaced baskets for many uses and the company was unable to adapt itself to the change, so the firm was liquidated in 1929.³ The Norwood Engineering Company was dealt a severe blow when in 1929 the

¹ See Appendix, Table III.

² *Hampshire Gazette*, March, 1931. There was a possibility in 1936-37 that the McCallum Hosiery Company would close, but at the present writing arrangements seem to have been completed for keeping it open. For two or three years another company, calling itself College Weavers, Inc., carried on the manufacture of rayon in the Belding-Hemingway plant, and also had a throwing mill in Leeds. That company, however, discontinued manufacturing in 1936 and the Belding-Hemingway plant, as well as the Corticelli mills, are now idle.

³ The new demands came at a time when the president of the company was in ill health, and the necessary changes were not attempted. (Interview with a manager of the business).

Holyoke paper trade, a large user of filters, began to retrench, and in 1933 this mill closed its doors.⁴

If the smaller plants alone had closed, that would not have been very serious. Northampton had lost small factories before and others had replaced them. Theirs, no doubt, was the fate of the small local manufacturing enterprise, unable to adapt to changing market conditions or to unusual financial strains. But to have the silk mills go deprived the region of a good part of its major industrial activity. Altogether the post-War shut-downs meant the loss of 43 per cent of the wage-earning positions, on the basis of 1920 figures, and 50 per cent of the production capacity measured in value of output. With the shutting down of these large silk mills, only one silk plant, that of the hosiery company, was left operating. This brought to a close, for the time being at least, the region's long years of prominence as a silk manufacturing center.

At first glance, the closing of the Northampton mills and the consequent decline of the region as a silk center might seem to indicate radical changes within the region; a place once considered a favorable industrial location was now losing some of its leading plants. But the matter is not so simple. In 1927 the Belding-Hemingway Company owned ten plants located in Connecticut, New York, Massachusetts, Michigan and California,⁵ and the Corticelli Company owned plants in Florence, Haydenville and Leeds in Massachusetts, and in New London and Norwich, Connecticut.⁶ A few years later, after the merger of the two companies, the Belding-Hemingway Company was reported to have active plants only in Putnam, Connecticut, and Petaluma, California; it had idle plants in Florence and Leeds, Massachusetts, and in New York.⁷ The company had sold its Michigan mills

⁴ Short-time and layoffs, begun in 1929, became more prolonged in the next two years. At its peak the company had employed not more than 150 men; now the number dropped to about 40—all of them on part-time. In 1933 a receivership was asked by the company to protect the creditors; the company, it was said, was solvent, but could not meet certain heavy claims maturing at the time. (Northampton Chamber of Commerce, 1932; *Hampshire Gazette*, April 28, 1933).

⁵ Moody, *op. cit.* (1927), 678.

⁶ *Ibid.* (1929), 339.

⁷ Poor's *Industrial Companies* (1936), 911-912.

in 1933, its Northampton and New York plants in 1932, a plant in Haverstraw, New York, in 1930, and one in Watertown, Connecticut, in 1931.⁸ Obviously, reasons of business expediency had demanded a major restriction of production. In selecting the group of mills best adapted to its curtailed production program, questions of plant capacity, equipment, geographic location, and so on, would be important; presumably, it was decided that lower production costs—more than ever a primary consideration for industries during the depression—would be possible in the Connecticut plants. Not only mills in Northampton and Florence, but also mills in New York State, in Michigan, and even in Connecticut, were closed. Under circumstances such as these, we cannot read too much meaning into the closing of the Northampton silk mills, so far as the region's advantages or disadvantages for silk manufacture are concerned.

SUMMARY

Retracing our history, we find that in general the region conformed to the accepted picture of New England industrial centers. Its pioneer and colonial history had no really distinctive characteristics. The Mill River, furnishing the water-power for industrial development, was an important locational factor only so long as steam power could not be used cheaply; in the late 1850's, when water-power resources of the river were reaching their limit of exploitation, the first steam engines were introduced into local factories; thereafter old factories began to install steam engines to supplement water-power, and a number of new plants used steam exclusively. Because of its isolation, the region's transportation facilities remained a problem for a longer time than was true for centers nearer the coast, or located on easily navigable rivers; not until the railroads came in the 1840's was there ready access to markets.

The principal manufactures were textiles, only here wool, not cotton, took first place in the early nineteenth century, and then silk became the leading industry. There was a variety of miscellaneous products, also quite typical of New England entre-

⁸ *Fitch's Manual* (New York, 1937), 614-615.

preneurial versatility. The region shared fully in the country's broad industrial expansion of the post-Civil War years. The Nonotuck Silk Company especially, had a phenomenal growth, and other enterprises, started during and soon after the Civil War, enjoyed considerable prosperity. As in other textile centers, paternalistic policies dominated in the relation of the companies to their employees, and there was a long-standing opposition to trade unions. Only outside the Florence group of industries did unions take hold, and then in only a few factories. A perhaps unusual emphasis was given to long-service with the companies, and to high standards of workmanship; these policies were fostered for many years by all sorts of honors and incentives. Also the educational and recreational facilities established by leading business men for general community use, not just for employees, differentiated the community from the typical industrial town, and added to the prestige of work in Florence and its neighboring villages.

In its origin the region did not resemble textile centers like Lowell or Waltham or Chicopee,⁹ developed as they were from the start by large-scale outside capital. Its chief interest as a type lies in the extremely long period during which the local business group held sway, and in the versatility and enterprise displayed by local manufacturers who so successfully adapted their enterprises to new methods and machines, as to make numbers of this small region's products well-known in the country's principal markets. Throughout the first half of the nineteenth century, with few exceptions, it was local business men and local business capital that guided and financed developing manufactures. In this we see a fairly typical picture of how numerous New England industrial centers developed before the Civil War. But it was not so usual, we imagine, for local capital and local initiative to play so large a rôle as they did here, in the expansion of this industrial community after the Civil War. While silk manufacture, the industry that was to establish the region in its position as a manufacturing center, was first introduced in the 1830's by a Boston

⁹ Cf. Shlakman, Vera, *op. cit.*, 14-15 and Ch. II.

business man, Samuel Whitmarsh, who enlisted the interest of New York investors in his first silk mill, yet the Whitmarsh ventures soon failed, and silk manufacture was firmly established by men already settled in Northampton. They took over the Whitmarsh property, which for a few years was owned by a co-operative community located in the village of Florence, and in the 1840's began on a small scale the manufacture of silk thread. It was this business that became the Nonotuck Silk Company, and it was the group of business men who guided its fortunes, together with other local men whom they drew into their enterprises, who began to venture into other manufacturing fields. By the end of the century they had established a whole series of companies, clustered around the Nonotuck mills and producing a great variety of products. The factories financed and operated by this group of local business men at the close of the century were producing approximately 54 per cent of the region's goods, or products valued at \$2,205,000. Apparently most of the capital for expansion came from the excellent profits of the enterprises.

Some of the largest firms in the region began as very small establishments. In their history an impressive amount of inventive skill was displayed, and a ready disposition to experiment with new machines and changing production methods as these were brought in from the outside. Some innovations were even the basis of entirely new enterprises that later grew into flourishing businesses with extended markets. Fresh content is given to the meaning of "Yankee ingenuity" by the varied contributions of entrepreneurs and artisans such as we find here. Such activity, while of course evident in the development of any New England industrial community, stands out here because much of the establishment and expansion of manufactures went on for so long with little aid from the outside.

The personnel of the local business group changed but slowly; sons succeeded fathers, and even grandsons came to have a place; new local business men were gradually drawn into positions of leadership, but it remained a closely-knit group, belonging to the community and its industries.

How long industries remained predominantly local in ownership we cannot be sure; perhaps well into the present century. Outside enterprises came in in the late nineteenth century, and local plants also began gradually to be taken over by outside corporations. That the old regime had finally passed became fully evident in the changes that took place during and after the World War. Abnormal war-time expansion, especially in silk, was followed by inevitable readjustment. The region was drawn full into the stream of the post-war rationalization movement. Efficiency systems, numerous technological improvements, and finally, consolidations, were the experience of every enterprise of consequence. The culmination of this movement was the closing of several silk mills, among them the mills of the old Nonotuck Silk Company. The Nonotuck silk mills had been the mainspring of the growth of manufactures in the region after the Civil War. Their closing showed with what finality the period of local enterprise, now many years in transition, had come to an end.

APPENDIX

TABLE I. STATISTICS OF MANUFACTURING INDUSTRIES ON THE MILL RIVER,
FOR SPECIFIED YEARS BETWEEN 1831 AND 1875*

Year	No. of Establishments	Value of Product	No. of Employees
1831.....	30	\$ 463,856	482
1836.....	29†	493,218	444†
1845.....	41†	620,469	798†
1855.....	74	1,018,480	1,135†
1865.....	64	2,400,071	1,447†
1875.....	44**	3,474,299	2,024

*Sources: 1831—U. S. 22nd Cong., 1st Sess., *House Executive Document* No. 308, "Documents Relative to the Manufactures in the United States," 1832.

1836—Massachusetts, *Statistical Tables Exhibiting Certain Branches of Industry in Massachusetts for Year Ending April 1, 1837* (Boston, 1838).

1845—Massachusetts, *Statistics of Conditions of Production in Massachusetts for Year Ending April 1, 1845* (Boston, 1846).

1855 and 1865—*Statistical Information Relating to Certain Branches of Industry in Massachusetts for 1855 and 1865*.

1875—Massachusetts, *Statistics of Manufacture, 1875*.

†Incomplete data.

**Beginning with the Census of Manufactures of 1875, many small establishments were excluded, due to a change in definition of what constituted manufacturing establishments.

TABLE II(a). STATISTICS OF MANUFACTURING INDUSTRIES ON THE MILL RIVER, BY PRINCIPAL INDUSTRIES, FOR SPECIFIED YEARS BETWEEN 1831 AND 1865.* VALUE OF PRODUCT.

Industry	1831	1836	1845	1855	1865
Total.....	\$463,856	\$493,218	\$620,469	\$1,018,480	\$2,400,071
Wool.....	284,406	299,235	180,072	145,600	107,000
Buttons.....	37,000	102,500	220,600	34,500	259,500
Silk.....		40,000	41,500	140,000	443,000
Leather goods...	37,000	23,550	13,200	25,200	142,170
Paper.....	9,000	†	64,250	100,000	127,000
Metals.....	24,000	16,483†	37,900†	294,000	732,300
Cotton.....	†	†	†	122,000	212,500†
Wood products..	†	†	†	93,500	134,449
All other.....	†	†	†	63,680	242,152

*For sources and explanatory notes see Table I.

TABLE II(b). STATISTICS OF MANUFACTURING INDUSTRIES ON THE MILL RIVER, BY PRINCIPAL INDUSTRIES, FOR SPECIFIED YEARS BETWEEN 1831 AND 1865*
Number of Establishments and Number of Employees

Industry	1831		1836		1845		1855		1865	
	Number Employees	Number Establishments	Number Employees	Number Establishments	Number Employees	Number Establishments	Number Employees	Number Establishments	Number Employees	Number Establishments
Total.....	482	30	444	30	798	44	1,135	74	1,447	64
Wool.....	186	4	175	6	276	5	206	6	46	3
Buttons.....	70	2	118	1	207	3	42	3	218	4
Silk.....			60	2	57	3	77	3	214	3
Leather goods.....	72	6	36	2†	20	6	11	†	60	5
Paper.....	17	1	†	1	71	2	100	3	144	3
Metals.....	†	9	†	10	44	10	429	18	451	14
Cotton.....	†	†	†	†	†	†	155	2	84†	2
Wood products.....	†	†	†	†	†	†	61	14	112	13
All other.....	†	18	†	8	†	15	48	†	118	17

*For sources and explanatory notes see Table I.

TABLE III. STATISTICS OF MANUFACTURING INDUSTRIES ON THE MILL RIVER, 1886-1932*

Year	Value of Product	No. of Wage Earners	Wages Paid
1886.....	\$2,676,988	1922	\$ 663,775
1887.....	(†)	1687	611,181
1888.....	(†)	1878	710,011
1889.....	(†)	2363	940,958
1890.....	(†)	2366	939,455
1891.....	4,427,597	2278	947,476
1892.....	4,325,782	2177	864,666
1893.....	3,580,883	2296	881,845
1894.....	2,847,514	1906	639,817
1895.....	3,491,061	2398	943,633
1896.....	2,636,679	2010	759,938
1897.....	2,710,987	1954	723,083
1898.....	3,166,297	2097	844,024
1899.....	4,329,643	2618	1,111,079
1900.....	4,112,221	2583	1,070,914
1901.....	4,663,143	2749	1,150,762
1902.....	5,154,437	2999	1,301,165
1903.....	5,172,680	3243	1,375,714
1904.....	5,286,001	3080	1,228,982
1905.....	5,528,330	3212	1,427,444
1906.....	5,874,522	3294	1,561,123
1907.....	5,900,441	3173	1,517,606
1908.....	5,540,331	2952	1,346,021
1909.....	5,753,727	3283	1,523,723
1910.....	6,463,932	3450	1,705,579
1911.....	7,257,303	3677	1,912,342
1912.....	7,561,285	3854	2,027,343
1913.....	7,723,474	3639	2,024,062
1914.....	7,457,937	3465	1,905,068
1915.....	8,813,678	3700	1,989,442
1916.....	10,955,143	3888	2,465,377
1917.....	12,997,588	3805	2,634,642
1918.....	15,687,696	3488	2,818,872
1919.....	17,400,117	3663	3,343,929
1920.....	18,554,901	4022	4,513,404
1921.....	15,114,807	3640	3,968,325
1922.....	15,615,005	3759	4,124,398
1923.....	17,133,509	3759	4,406,734
1924.....	13,117,957	3328	3,808,820
1925.....	15,675,749	3576	4,289,544
1926.....	15,168,285	3583	4,323,139
1927.....	15,643,278	3404	4,175,892
1928.....	14,625,935	3450	4,264,746
1929.....	14,561,495	3271	4,128,576
1930.....	10,153,416	2833	3,159,664
1931.....	8,733,882	1884	1,984,097
1932.....	5,420,228	1757	1,659,593

*Compiled from unpublished data obtained from the Massachusetts Department of Labor and Industries.

† Incomplete data.

TABLE IV. ANNUAL VALUE OF PRODUCT OF FOUR PRINCIPAL MILL RIVER INDUSTRIES, 1886-1932*

Year	Silk	Cutlery	Other Metals	Wood Products (1)
1886.....	\$1,889,066	\$ (2)	\$ 322,007	\$ (2)
1887.....	2,126,525	(2)	365,698	(2)
1888.....	2,389,806	(2)	779,425	(2)
1889.....	2,943,181	(2)	877,556	(2)
1890.....	2,948,721	(2)	764,557	134,500
1891.....	2,990,192	429,821	560,638	138,368
1892.....	3,288,992	410,701	(3)	142,607
1893.....	2,402,083	365,719	381,522	115,334
1894.....	2,146,221	210,488	(3)	98,604
1895.....	2,169,148	316,032	517,412	110,636
1896.....	1,649,424	309,294	153,989	141,931
1897.....	1,787,295	228,408	182,000	82,585
1898.....	2,050,770	349,317	221,614	74,972
1899.....	2,713,176	393,411	594,407	94,903
1900.....	2,391,492	363,341	659,998	131,530
1901.....	2,859,451	373,892	682,717	147,179
1902.....	3,185,096	435,210	742,570	154,752
1903.....	3,062,912	485,908	726,140	200,481
1904.....	3,098,473	522,715	723,988	201,821
1905.....	3,298,649	553,234	822,497	190,194
1906.....	3,416,534	560,818	829,032	218,495
1907.....	3,466,940	531,371	905,807	227,935
1908.....	3,457,942	372,323	743,039	219,923
1909.....	3,182,190	483,324	812,535	254,237
1910.....	3,841,310	484,414	870,174	160,987
1911.....	4,170,539	535,742	1,091,310	235,796
1912.....	4,336,228	597,376	1,034,461	256,956
1913.....	4,646,059	520,375	922,406	264,297
1914.....	4,566,629	394,900	861,325	249,673
1915.....	4,726,095	459,727	801,248	221,305
1916.....	6,637,878	623,460	858,635	245,039
1917.....	8,821,213	698,773	912,101	308,573
1918.....	10,723,301	572,470	1,059,839	390,800
1919.....	11,337,234	781,240	1,048,301	533,183
1920.....	11,315,167	1,130,134	1,395,789	611,273
1921.....	8,811,429	922,208	1,120,694	404,525
1922.....	9,110,416	1,031,616	1,030,406	466,304
1923.....	9,777,629	1,263,998	1,132,207	473,608
1924.....	6,228,986	1,315,154	954,918	442,970
1925.....	9,129,111	1,289,714	791,721	(4)
1926.....	8,118,758	1,534,450	974,901	
1927.....	8,529,217	1,431,432	1,029,050	
1928.....	7,364,595	1,304,471	1,054,821	
1929.....	7,596,473	1,419,077	891,393	
1930.....	5,533,248	1,026,341	799,058	
1931.....	(5)	669,308	720,392	
1932.....		575,660	288,612	

*For source of data see Table III.

(1) Wood products include barrels, caskets, wagons, etc.

(2) Less than 3 establishments, so data not given.

(3) Data incomplete.

(4) After 1924 less than 3 wood products establishments were operating so data not given. There was a 31 per cent decline in value of wood products between 1924 and 1932.

(5) After 1930 less than three silk establishments were operating so data not given. There was a 67 per cent decline in value of silk manufactures between 1930 and 1932.

TABLE V. NUMBER OF WAGE EARNERS AND ANNUAL WAGES PAID IN FOUR PRINCIPAL MILL RIVER INDUSTRIES, 1886-1932*

Year	SILK		CUTLERY		OTHER METALS		WOOD PRODUCTS	
	No. of Wage Earners	Wages Paid	No. of Wage Earners	Wages Paid	No. of Wage Earners	Wages Paid	No. of Wage Earners	Wages Paid
1886.....	1267	\$ 375,440	(2)	(2)	299	\$115,000	(2)	(2)
1887.....	1107	412,525	(2)	(2)	240	125,977	(2)	(2)
1888.....	1139	368,859	(2)	(2)	382	198,110	(2)	(2)
1889.....	1256	620,309	(2)	(2)	470	245,392	(2)	(2)
1890.....	1247	540,531	(2)	(2)	509	233,464	122	\$ 46,609
1891.....	1245	641,918	403	\$228,058	(3)	(3)	130	50,688
1892.....	1219	415,118	457	231,975	(3)	(3)	144	56,279
1893.....	1146	352,186	428	210,076	321	(3)	110	42,032
1894.....	1132	336,743	338	128,160	(3)	(3)	101	33,765
1895.....	1191	580,624	387	182,987	394	(3)	95	34,996
1896.....	949	298,726	417	171,429	(3)	(3)	130	34,060
1897.....	941	302,408	369	137,104	(3)	(3)	74	29,103
1898.....	1006	351,834	391	170,402	(3)	90,180	75	31,692
1899.....	1177	420,651	394	208,325	438	213,710	95	40,435
1900.....	1108	379,686	369	194,040	471	217,504	110	41,005
1901.....	1147	413,478	376	188,557	529	265,529	119	47,346
1902.....	1241	464,762	421	227,740	548	272,474	146	57,965
1903.....	1314	481,724	445	141,135	596	207,321	195	75,352
1904.....	1211	360,377	459	260,824	604	257,619	161	65,393
1905.....	1329	510,212	471	275,563	588	311,205	132	57,482
1906.....	1289	547,629	469	280,613	639	306,670	128	59,562
1907.....	1217	527,795	439	269,252	669	329,728	132	59,152
1908.....	1203	501,276	355	185,798	560	277,366	132	58,912
1909.....	1319	568,763	399	235,800	584	279,416	151	68,741
1910.....	1509	685,443	398	230,734	591	305,614	94	46,006
1911.....	1581	784,487	416	255,341	677	356,034	151	74,275
1912.....	1703	845,550	435	275,896	635	339,529	150	82,430
1913.....	1751	893,860	408	252,113	543	318,993	152	78,391
1914.....	1699	941,883	378	214,322	502	329,577	139	74,408
1915.....	1671	597,188	377	225,965	468	260,771	122	69,276
1916.....	1789	1,054,287	412	287,941	464	295,822	124	81,558
1917.....	1818	1,172,778	411	336,971	406	233,744	137	98,323
1918.....	1675	1,272,173	325	289,581	348	297,650	150	127,368
1919.....	1820	1,671,856	357	352,964	351	326,211	159	131,967
1920.....	1927	2,141,180	369	495,114	375	433,803	213	236,641
1921.....	1928	2,134,597	404	467,844	321	200,545	111	118,146
1922.....	2004	2,203,816	419	445,653	307	335,784	159	182,210
1923.....	1929	2,251,930	440	554,261	310	361,984	156	184,861
1924.....	1580	1,725,114	443	574,469	308	359,346	141	158,484
1925.....	1925	2,287,928	446	574,700	282	344,314	103	(2)
1926.....	1920	2,184,585	516	682,066	251	296,180	115	(2)
1927.....	1826	2,187,343	494	670,651	242	300,065	156	(2)
1928.....	1891	2,368,704	460	604,072	266	310,884	114	(2)
1929.....	1846	2,364,879	461	617,501	242	264,933	98	(2)
1930.....	1815	1,762,331	435	461,765	200	216,115	79	(2)
1931.....	(5)		356	317,175	177	158,932	64	(2)
1932.....	(5)		297	213,919	80	77,580	63	(2)

*For source of data and explanatory notes see Tables III and IV.

BIBLIOGRAPHY

SOURCES FOR EARLY MATERIAL

The source material for that part of the study which deals with the development of the Mill River region prior to 1800 has been found largely in local histories, in copies of early *Hampshire Gazettes*, and in a few scattered account books. We were especially fortunate in having in J. R. Trumbull's *History of Northampton*, published in 1902, a type of study unusual in its probable accuracy. Trumbull based his work on actual church and parish records, county and state archives, town records, public and private correspondence, and on the monumental manuscript of Sylvester Judd. Sylvester Judd was a local historian of earlier date who faithfully recorded many town happenings. Trumbull has supplied a very detailed account of early events and their dates on which it has seemed safe to rely.

The Hampshire Gazette, first published on September 6, 1786, and carried on for many years as a weekly, was especially valuable in showing both the type of work done in the early period and the town's economic stage of development. Full use was made of the advertising material which, far more than the occasional articles on the subject, gave clues to the industry of the time.

A few, scattered, first-hand accounts and bills from this early period were made available by Northampton residents who dug them from their attics. Because of the paucity of such material and its sketchiness, we have tried not to make other than conservative conjectures upon it.

UNPUBLISHED MANUSCRIPT MATERIAL*

Account Book of Samuel Bodman of Hatfield, Weaver, 1717-1727. Owned by a Northampton resident. (Williamsburg was a part of the town of Hatfield until 1771.)

Edwards-Dewey Day Books. Account books of the Edwards tannery, 1814-1846. Owned by a Northampton resident.

Forence Casket Company (originally, Florence Furniture Company) ; Minutes of Directors' Meetings, 1873-1933.

Miscellaneous receipts, deeds, and other papers, bearing dates between 1803 and 1850. Owned by Northampton residents.

* Much helpful information came from interviews. Among those seen were officers of several companies, and also a number of foremen who had seen long service with their companies. A large group of long-service employees were interviewed, and for these interviews a schedule was employed. Information was also secured from a number of residents of Northampton and Williamsburg, who through family connections or otherwise, were familiar with some phase of local industrial history.

Nonotuck Silk Company, Minutes of Directors' and Stockholders' Meetings, 1865-1921.

Registry of Deeds, Hampshire County, *Records*, 1776-1930.

Trade receipts covering the period 1815-1840. Owned by a Northampton resident.

Unpublished data obtained from the Massachusetts Department of Labor and Industries on value of products, average number of wage earners employed, and total wages paid, for manufacturing establishments in Northampton and Williamsburg. Annual figures for establishments, 1886-1932.

Unpublished manuscripts on local history: J. H. Hooper, "Beginnings of Florence and Northampton," (1925); D. E. Hoxie, "Early Birds," (1917); *Ibid.*, "The Tan Works as I Recall them," (n.d.); Lathrop, B. S., "Daniel Stebbins and the Silk Industry in Northampton," (1929); "The Beginnings of Haydenville," by Mrs. Church of Williamsburg and a paper on the same subject by Mr. Purrington of Haydenville, (n.d.).

Williams Manufacturing Company. Statistics of the number and kinds of items manufactured, 1913-1921, and other miscellaneous data. Owned by a Northampton resident.

NEWSPAPERS, BUSINESS DIRECTORIES AND JOURNALS

Andrews American Queen, "The Silk Industry of America," New York, July 17, 1880.

Daily Graphic, New York, March 5, 1878.

Davison's Silk and Rayon Trades, 1919.

Gazette and Public Advertiser, December 22, 1818.

Hampshire County Journal, Quarter Centennial Edition, 1887.

Hampshire Gazette, 1786-1932.

Hampshire Gazette and Northampton Courier, March 15, 1892.

Hampshire and Hampden Canal. Pamphlets Relating to the Improvement of the Connecticut River (12 pamphlets), 1824-1830; also clippings, prints, and miscellaneous material. Connecticut Valley Historical Society.

Hunt's Merchants' Magazine, New York, Vol. II, 1840, and Vol. XIV, 1846.

Industry, Boston, Vol. XXIII, No. 6, April 6, 1929.

Kayser, J. C. and Company, *Commercial Directory*, Philadelphia, 1823.

McCallum's Hosiery Company's Shop Magazine, 1924.

Magazine of American History, New York and Chicago, Vol. VIII, 1882.

The New England Magazine, Vol. XII, March, 1895, Rumsey, Olive, "The Northampton Association of Education and Industry."

Newspaper clippings of date *ca.* 1892. Scrap book owned by a Northampton resident.

- Niles' Weekly Register*, Baltimore, Md., 1811-1849.
Northampton Daily Herald, 25th Anniversary Edition, 1908.
 Northampton Directories, 1860, 1868, 1871-1932.
Pittsfield Sun, January 11, 1812.
Silk, New York, December, 1927.

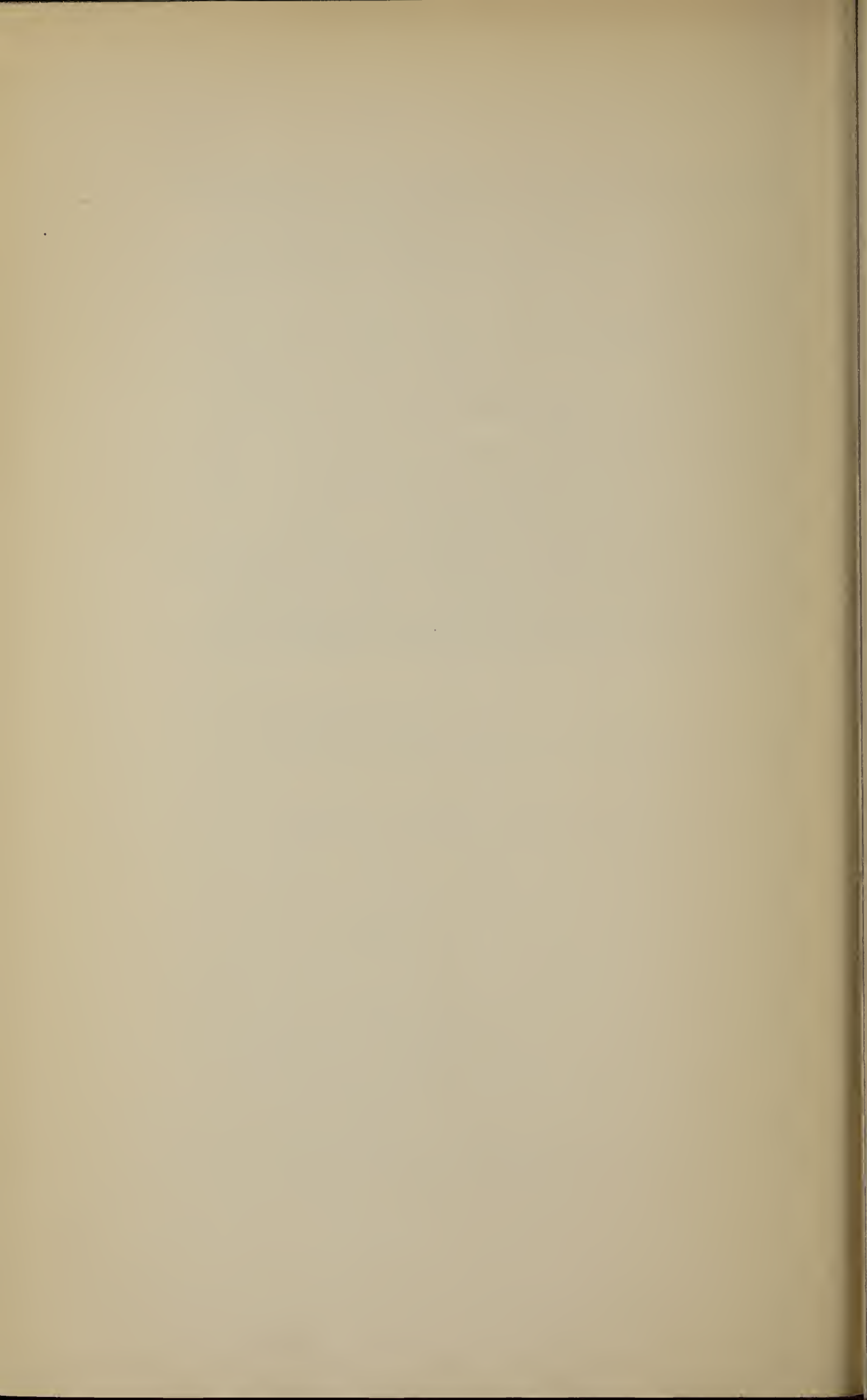
GENERAL WORKS

- Bagnall, William R., *The Textile Industries of the United States*. Cambridge, Mass., 1893.
 Belding Brothers and Company, *Fifty Years, 1863-1913*.
 Benton, C. and Barry, S. F., comp., *Statistical Views of the Number of Sheep in Several Towns and Counties in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania*. 1837.
 Bishop, J. L., *A History of American Manufactures from 1608 to 1860*. Philadelphia, 1864, 2 Vols.
 Bogart, Ernest L., *An Economic History of the United States*. New York, 1927.
 Bridgman, Thomas, *Inscriptions on the Grave Stones in the Grave Yards of Northampton and Other Towns in the Valley of the Connecticut with Brief Annals of Northampton*. Northampton, Mass., 1850.
 Brockett, L. P., *The Silk Industry in America*. Washington, 1876.
 Burt, Henry, *Burt's Illustrated Guide of the Connecticut Valley*. Northampton, Mass., 1866.
 Carpenter, A. H., "Northampton, Past and Present," from *Western New England*, Vol. I, October, 1911.
 Chandler, C. H., *The Attractions of Northampton*. Springfield, Mass., 1871.
 Chickering, Jesse, *A Statistical View of the Population of Massachusetts, 1765-1840*. Boston, 1846.
 Clark, Solomon, *Antiquities, Historicals and Graduates of Northampton*. Northampton, Mass., 1882.
 Clark, Victor S., *History of Manufactures in the United States*. New York, 1929 ed. 3 Vols.
 Cole, Arthur H., *The American Wool Manufacture*. Cambridge, Mass., 1926. 2 Vols.
 Coman, Katharine, *The Industrial History of the United States*. New York, 1917.
 Corticelli Silk Mills, Florence, Massachusetts, *Silk, its Origin, Culture and Manufacture*. Florence, Mass., 1911.
 Eden, J., *The Mt. Holyoke Handbook and Tourists' Guide for Northampton and its Vicinity*. Northampton, Mass., 1851.
 Everts, Louis H., *History of the Connecticut Valley in Massachusetts*. Philadelphia, 1879. 2 Vols.
 Florence Manufacturing Company, *Fifty Years of Brushmaking, 1866-1916*.

- Freeman, Phyllis M., *Industrial and Labor Developments in the City of Northampton, 1898 to 1930*. M.A. Thesis (Smith College), 1931.
- Gay, W. B., *Gazetteer of Hampshire County, Massachusetts*, 1654-1887. Syracuse, N. Y., 1886(?).
- Gere, Henry S., *Reminiscences of Old Northampton, Sketches of the Town as it Appeared from 1840 to 1850*. Northampton, Mass., 1902.
- Gras, N. S. B., *Industrial Evolution*. Cambridge, Mass., 1930.
- Hart, Albert B., *Commonwealth History of Massachusetts*. New York, 1927-30. 5 Vols.
- Hazard, Blanche E., *The Organization of the Boot and Shoe Industry in Massachusetts before 1875*. Cambridge, Mass., 1921.
- Historical Localities in Northampton*, compiled for the 250th anniversary of the town. June 5-7, 1904. Northampton, Mass.
- Holland, J. G., *History of Western Massachusetts*. Springfield, 1855. 2 Vols.
- Houghton, Ruth, *The Silk Industry in Northampton*, special honors in history, undergraduate thesis (Smith College), 1929.
- Inland Massachusetts. Springfield, 1890.
- International Publishing Company, *Leading Manufacturers and Merchants of Central and Western Massachusetts*. New York, 1886.
- Johnson, Clifton, *Historic Hampshire in the Connecticut Valley*. Springfield, 1932.
- Jones, W. U., *The Button Industry*. London, 1924.
- Judd, Sylvester, *History of Hadley*. Springfield, 1905.
- Kenrick, William, *The American Silk Growers' Guide*. Boston, 1835.
- Kneeland, Frederick N., *Northampton, the Meadow City*. Northampton, Mass., 1894.
- Lilly, A. T., *The Silk Industry of the United States from 1766 to 1874*. Boston, 1875.
- Manchester, H. H., *The Story of Silk and Cheney Silks*, New York, 1916.
- Massachusetts, Bureau of Statistics of Labor, *Annual Statistics of Manufactures*, 1886-1913.
- Massachusetts, Bureau of Statistics of Labor, *Annual Reports*, 1890-1914.
- Massachusetts, *Statistical Tables Exhibiting Certain Branches of Industry in Massachusetts for Year Ending April 1, 1837*. Boston, 1838.
- Massachusetts, *Statistics of Conditions of Production in Massachusetts for Year Ending April 1, 1845*. Boston, 1846.
- Massachusetts, Bureau of Statistics of Labor, *Census*, 1880.
- Massachusetts, *Census of Manufactures*, 1875, 1891.
- Massachusetts, Bureau of Statistics, *Decennial Census of the Commonwealth*, 1855-1915.

- Massachusetts, *Private and Special Statutes*, 1803-1850.
- Massachusetts, Secretary of the Commonwealth, *Statistical Information Relating to Certain Branches of Industry in Massachusetts for 1855 and 1866*.
- Moody's *Manual of Industrial Investments*. New York, 1923, 1927, 1931, 1933.
- Nason, Elias, *A Gazetteer of the State of Massachusetts*. Boston, 1874.
- Nonotuck Silk Company, *Silk, Its Origin, Culture and Manufacture*.
- Northampton, Chamber of Commerce, *A Brief History of the Exhibitors, Made in Northampton Exposition*. Northampton, Mass., 1927.
- Northampton, Chamber of Commerce, *Northampton*. 1930 and 1932.
- Northampton, Chamber of Commerce, *Our Town*, issued monthly in the interest of Northampton, Vols. I-II, September, 1919-December, 1920.
- Northampton, *The Meadow City*, issued for delegates to the Massachusetts State Conference of Charities, October 21, 22, 23, 1913. Northampton, Mass., 1913.
- Recent Social Trends in the United States*, Report of the President's Research Committee on Social Trends. New York, 1933. 2 Vols.
- Sheffield, Charles A., *The History of Florence, Massachusetts*. Florence, Mass., 1895.
- Shlakman, Vera, *Economic History of a Factory Town* (Smith College Studies in History, Vol. XX). Northampton, Mass., 1936.
- Silk and Manufactures of Silk*, Washington, 1918, Schedule A.
- Spofford, Jeremiah, *A Gazetteer of Massachusetts*. Newburyport, Mass., 1828.
- Stone, Orra L., *History of Massachusetts Industries*. Boston, 1930. 3 Vols.
- Taft, Royal C., *Introduction of Woolen Manufacture into the United States*. 1882.
- Thorp, W. L. and Mitchell, W. C., *Business Annals*. New York, 1921-1930.
- Trumbull, J. R., *History of Northampton, Massachusetts*. Northampton, Mass., 1902. 2 Vols.
- Tryon, Rolla M., *Household Manufactures in the United States, 1640-1860*. Chicago, 1917.
- U. S., *American State Papers*, Vol. III, *Finance*, Vol. V.
- U. S., Bureau of Labor Statistics, *Bulletin No. 572*, "Wholesale Prices," 1931, 1933.
- U. S. Bureau of the Census, *Monograph 3*. Thorp, W. L., "The Integration of Industrial Operations," 1924.

- U. S. *Report of the Industrial Commission on the Relations and Conditions of Capital and Labor Employed in Manufactures and General Business*. Vol. XIV, Washington, 1901.
- U. S. Twelfth Census, 1900. Vol. VII, Manufactures, Part I.
- U. S. 22nd Cong., 1st Sess., *House Executive Document* No 308, "Documents Relative to the Manufactures in the United States," 1832.
- Van Slyck, J. D., *Representatives of New England Manufacturers*. Boston, 1879. 2 Vols.
- Ware, Caroline, *The Early New England Cotton Manufacture*. Boston, 1931.
- Warner, Charles F., *Representative Families of Northampton*. Northampton, Mass., 1917.
- Weeden, William B., *Economic and Social History of New England, 1620-1789*. Cambridge, Mass., 1899. 2 Vols.
- Western Massachusetts, a History, 1636-1925*. John H. Lockwood, ed. New York and Chicago, 1926.
- Whitmarsh, Samuel, *Eight Years' Experience and Observation in the Culture of the Mulberry Tree and in the Care of the Silk Worm*. Northampton, Mass., 1839.
- Williams, Solomon, *Historical Sketch of Northampton from its First Settlement*: in a sermon delivered on the national Thanksgiving, April 13, 1815. Northampton, Mass., 1815.



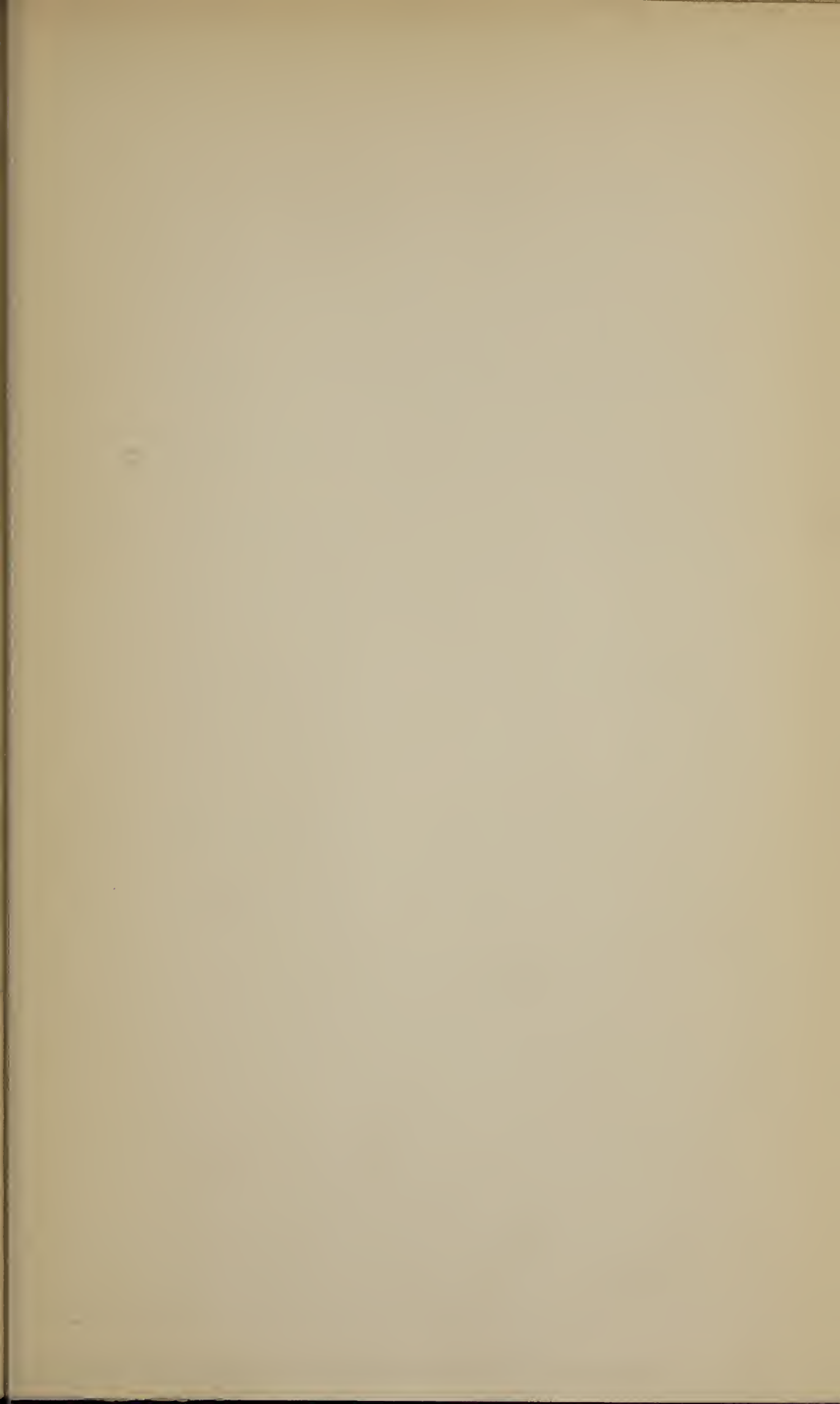
INDEX

- Adam, William, 65
 Advertising, 110, 110 n.
 Agricultural implements, 23, 48, 84-85, 86
 Allied Metal Workers' Association, 99-100
 Amherst Cotton Manufacturing Company, 19
- Banks, 26, 30, 33, 79, 80, 82, 84
 Baskets, 10, 23, *80, 83, 84, 93, 111, 111 n., 114, 121
 Bay State Tool Company, 85, 86
 Belding Brothers Silk Company, 10, 89, 90-91, 95 n., 96, 100, 101, 106-107, 108, 109, 110, 118; merger with Hemingway Company, 114. *See also* Belding-Hemingway Company
 Belding-Hemingway Silk Company, merger, 114, 114 n., 115; merger with Corticelli Silk Company, 121, 121 n., 122-123
 Blacksmith shops, 13, 23
 A. H. Bodman Company (woolen cloth), 18, 31, 31 n., 32, 41, 48
 Bodman and Hopkins Tannery, 29-30 n.
 Bonus plans, 98, 98-99 n., 102-103, 103 n., 109
 Boots and shoes, 22-23
 Brainerd and Armstrong Silk Company, 78, 107, 112, 117
 Brass goods, 75, 78, 80, 86, 91, 114
 Brick yards, 14, 48
 Bridges, 52, 52 n.
 Brushes, 77, 77 n., 78, 80, 80 n., 81, 91, 93, 98, 114-115
 Business leaders, Mill River region:
 B. A. Armstrong, 78, 107; J. P. T. Armstrong, 78, 107; J. D. Atkins, 73, 78, 79, 80, 81, 82; George W. Benson, 65; Luther Bodman, 79, 82, 86; H. H. Bond, 79, 82; Sidney Brewster, 31, 31 n., 41; George A. Burr, 75, 78, 80, 81, 82, 107; Daniel Butler, 22, 24, 24 n.; William Butler, 22; William Clark, 88; W. T. Clement, 79, 82, 86, 100; James Conant, 88; Joseph Conant, 63, 65; William Cordes, 107; A. P. Critchlow, 9, 45 n., 87-88; Edgar F. Crooks, 108; Ira Dimock, 72, 73, 78, 79, 80, 82, 101, 102; Lucius Dimock, 73, 78, 80, 83 n., 97, 104; E. W. Eaton, 73, 78, 81; William Edwards, 27-30; Daniel Hayden, 46; David Hayden, 46; Joel Hayden, 9, 36, 44, 45-46 n., 48, 74, 74 n., 75, 78, 80, 82; Josiah Hayden, 9, 36, 44, 45, 45-46 n., 74, 74 n., 80; A. G. Hill, 78, 79, 80, 81, 82; Samuel L. Hill, 65, 69, 70, 73, 75, 78, 79, 80, 81, 82, 83 n., 87, 88, 90, 104; H. R. Hinckley, 78, 79, 80, 81, 82, 86; Samuel L. Hinckley, 70, 73, 78, 80, 81; H. W. Hosford, 79, 82; Dr. Ebenezer Hunt, 25; William W. Lee, 86; A. T. Lilly, 71, 73, 78, 79, 80, 81, 82, 83 n., 104; D. G. Littlefield, 74, 75, 78, 79, 80, 81, 88; F. N. Look, 78, 80, 81, 83 n.; A. Lyman, 74; Alexander McCallum, 89, 102 n., 108; George McCallum, 108; C. A. Maynard, 86; H. P. Otis, 79, 82; J. L. Otis, 75, 79, 80; I. S. Parsons, 75, 78, 79, 80, 81, 87, 88; Lewis Phelps, 31 n.; A. D. Sanders, 75, 78; Nathaniel Sears, 31 n.; James Shepherd, 32, 33-34, 35, 37, 40; Levi Shepherd, 9, 25-26, 30, 31, 33, 52; Thomas Shepherd, 37, 59 n.; William Skinner, 89; Dr. Daniel Stebbins, 49 n., 60; Edward Valentine, 62, 62 n., 73; Samuel Whitmarsh, 9-10, 59-61, 62-63, 63 n., 67-68, 75, 125; H. F. Williams, 80, 81, 82; H. L. Williams, 79, 80, 84, 86; L. B. Williams, 74 n., 75, 79, 80, 81, 84, 86; A. L. Williston, 78, 79, 80, 82; J. P. Williston, 74, 74 n., 78, 80, 82; Samuel Williston, 9, 43, 44, 45, 55-56, 74, 74 n., 78, 80; E. E. Wood, 86; E. E. Wood, Jr., 86
 Butler paper mill, 47 n., 88

- Button industry, 9, 43-45, 45-46 n., 48, 50, 74, 78, 83, 83 n., 87-88, 87 n., 91, 128
 Canals, 51, 53-54, 56-57
 Canvass making, 25-26, 25 n.
 Capital, sources of, 10-11, 10 n., 33, 83, 107, 125, 126; local, 26, 30, 41, 55, 92, 106-109, 124-125; outside, 27-28, 32-33, 55, 61, 106-109, 108 n., 119
 Carriages and wagons, 23, 48
 Caskets, 79, 80, 81, 91, 114
 Central Oil Gas Stove Company, 77, 107, 121
 Child labor, 95 n.
 Clark, William, and Company (paper), 47 n.
 Clark, Victor S., 64, 70
 Clement cutlery plant, 100
 Clocks, 49
 Cole, Arthur H., 32, 42
 College Weavers, Inc., 121 n.
 Conant Manufacturing Company (silk goods), 89
 Connecticut River, transportation on, 51, 56
 Corticelli Silk Company, merger of Brainerd and Armstrong and Nonotuck Silk, 112-113, 114, 115, 116, 118; merger with Belding-Hemingway Company, 121, 121 n., 122-123. *See also* Nonotuck Silk Company
 Cotton goods, 43, 46-47, 50, 74-75, 78, 80, 112, 128
 Cutlery industry, 10, 47 n., 65 n., 79, 83, 84-86, 91, 94, 97-98, 99-100, 107, 114, 130, 131
 Decline in production, post-World War, 119-120, 122
 Decline of silk industry, 121-126
 Decline of woolen industry, 41-42, 86-87
 Edwards Tannery, 27-29, 27 n.
 Efficiency systems, 98-99 n., 113, 116-119, 126
 Electric power, 91
 Embargo, effects on local industry, 36-37
 Establishments, number of, 127, 128
 Federation of Hosiery Workers, 100-101
 Flax, 14, 16, 16 n., 26, 49
 Florence business group, 74-83, 74 n., 83 n., 91-92, 93, 99, 104, 124, 125
 Florence Community, 63, 64-69, 68 n., 70, 73, 83 n., 88, 89 n.
 "Florence composition," 77 n., 80 n., 87
 Florence Furniture Company, 79, 80, 81, 91
 Florence Manufacturing Company (later Pro-phy-lac-tic Brush), 10, 77 n., 78, 80 n., 80-81, 88, 102, 103, 103 n., 107, 110, 110 n., 116, 117; merger with Lambert Company, 114-115
 Florence Sewing Machine Company, 75-77, 79, 80, 84, 90, 107
 Florence Tack Company, 79, 80, 81-82, 108
 E. N. Foote Company (buttons), 87, 88
 Greenville Cotton Manufacturing Company, 74-75, 78, 80
 Grist Mills, 12-13, 18 n., 48
Hampshire County Journal, 77
Hampshire Gazette, 22, 25, 37, 38, 53, 58, 59, 62, 75, 81, 85
 Hampshire, Hampden and Franklin Agriculture Society, 58, 61
 Hampshire Leather Manufactory, 27-28, 29 n.
 Hampshire Mechanic Association, 21 n.
 Handicraft industry, 13-14, 23, 47-49, 54
 Hayden and Sanders Company (cotton goods), 78, 102
 Hayden cotton Mill, 48
 Haydenville Brass Company, 10, 78, 80, 86
 Haydenville Manufacturing Company (cotton goods), 75, 78, 80
 Hemp, 16, 16 n., 49, 49 n.
 Hill and Martin Cash Carrier Company, 79, 80, 82
 Hosiery manufacture, 71, 89, 100-101, 107-108, 109-110, 114-115, 118-119
 Hours of work, 40, 67, 69, 94-96, 95-96 n.

- Household industry, 14-16, 19 n., 24
- "Industrial Democracy" plan, 118, 118 n.
- Industrial depressions, effects of in region, 71, 75, 91, 96, 96 n., 100, 106, 113, 114
- Industrial expansion, 20, 43, 70 n., 73, 77, 81, 82, 87, 96, 99, 112; post-Civil War, 70, 91-92, 124; World War, 109-111; post-World War, 9, 126
- Industrial readjustment, post-World War, 112-119
- International Silver Company, 10, 107, 110
- Labor, 28-29, 29 n., 38-40, 56, 63, 88, 93-105, 115-119; displacement of, 99; labor relations, 99-105, 102 n., 103 n., 115-119, 124; nativity of, 93-94; number employed, 9, 39 n., 40, 43, 46 n., 88, 119, 122, 122 n., 127, 128, 129, 131; sex distribution, 39, 39 n., 40-41, 93. *See also* Efficiency systems, Hours of work, Labor organizations, Strikes, Wages, Welfare policies.
- Labor organization, 95, 95 n., 99-101, 104, 118, 119, 124
- Lambert Company, merger with Pro-phy-lac-tic Brush Company, 114-115
- Lead mining, 14
- J. N. Leonard Mill (silk), 73, 89
- Lilly Hall, Smith College, 83 n.
- Littlefield and Parsons Company, 77, 78
- McCallum Hosiery Company, 10, 89, 98, 101, 102 n., 103 n., 107-108, 108 n., 110; merger with Propper Company, 115, 118-119, 118 n., 121 n.
- Mansfield Silk Company, 59
- Markets, 24, 25, 40, 43, 47, 49, 55, 70, 71, 72, 76, 77, 81, 84, 85, 91, 112, 119
- Massachusetts Hemp Company, 49
- Mergers, 112-113, 114-115, 114 n., 122-123
- Merino sheep, 9, 36, 36 n., 37
- Metal goods, 10, 23, 47-49, 47 n., 65 n., 70, 75-77, 77 n., 78, 79, 80, 81-86, 81 n., 83-84 n., 91, 93-94, 97-100, 107, 114, 128, 130, 131
- Mill River flood (1874), 75, 86, 88, 89, 91
- Mulberry trees and silk culture, 59-61, 63, 68
- National Intelligencer*, 61
- Nonotuck Silk Company, 10, 69, 70-73, 74, 74 n., 78, 80, 88, 89, 89 n., 90, 91, 92, 94-95 n., 96, 97, 98, 98 n., 100, 101-102, 103, 103 n., 104, 107, 109-110; merger, forming Corticelli Silk Company, 112-113, 116, 117, 124, 125. *See also* Corticelli Silk Company
- Northampton Association for Education and Industry. *See* Florence Community
- Northampton Cotton and Woolen Manufacturing Company, 32
- Northampton Cutlery Company, 79, 80, 82, 84, 85-86, 96 n., 114
- Northampton Emery Wheel Company, 79, 80, 81, 82, 84, 121
- Northampton Mechanic Association, 21 n.
- Northampton Paper Company, 22, 47 n.
- Northampton Pegging Machine Company, 79, 80, 82
- Northampton Silk Company, 10, 61, 64, 88, 89 n., 90
- Northampton Woolen Manufacturing Company, 9, 40
- Norwood Engineering Company, 79, 80, 82, 95-96 n., 99, 102, 103 n., 107, 111, 114, 121-122, 122 n.
- Oneida Community, 65 n.
- Oneida, Ltd., 10, 16, 65 n., 114
- Paper, 22, 47, 47 n., 50, 83, 88, 122, 128
- Pension systems, in local enterprises, 103, 113-114, 116, 116 n.
- Philanthropies of local business men, 83 n.
- Pioneer community, 12-16, 24
- Plant shutdowns, 82, 83 n., 86, 88, 121-123, 121 n.
- Population of region, 24, 24 n., 92 n.
- Pottery, 21

- Production methods, changes in, 16-19, 27-28, 34-36, 44-45, 62, 70, 71-72, 77 n., 80 n., 91, 96-99, 111, 113-114, 116-118, 117 n., 119, 125, 126
 Pro-phy-lac-tic Brush Company. *See* Florence Manufacturing Company
 Pro-phy-lac-tic Brush Corporation, merger of Lambert and Pro-phy-lac-tic Brush Companies, 114-115
 Proper-McCallum Hosiery Company, merger, 115, 118-119, 118 n., 121 n.
 "Proprietors of Locks and Canals on the Connecticut River," 26, 51, 56
 Providence and Northampton Turnpike Corporation, 52-53, 56
 Putting-out system, 43-44, 45, 55-56
 Pyncheon, John, 14
 Railroads, 54, 54 n., 57, 80, 123
 Raw material 10, 15-16, 36-38, 36 n., 49-50, 58, 58 n., 59-61, 62, 63-64, 77 n., 80 n., 84, 111
 Rayon, 112, 113, 121 n.
 Rogers, William A., Ltd. (cutlery), 10, 65 n., 86, 97-98, 98-99 n., 99, 107, 114
 Rope making, 26
 Sawmills, 13, 48, 72
 Saxony sheep, 9, 37
 Sears woolen mill, 31, 31 n., 32, 41
 Sewing machines, 70, 75-77, 77 n., 79, 80, 107
 Sheep, 9, 15, 16, 36, 36 n., 37, 59 n.
 Shepherd, James, 32, 33-34, 35, 37, 40
 Shepherd Woolen Manufacturing Company, 19, 32-40, 41-42, 48, 90
 Silk Association of America, 91
 Silk culture, 58 n., 59-64, 67-68
 Silk industry, 9-10, 47 n., 58-74, 58 n., 59 n., 62 n., 70 n., 76, 78, 80, 83, 88-89, 89 n., 90-91, 92, 93, 94, 95 n., 96, 97, 97 n., 100-104, 106-108, 106 n., 109-110, 112-119, 121-123, 124-125, 126, 128, 130, 131
 Singer Sewing Machine Company, 70
 Skinner Silk Company, 89, 90, 91
 Stage lines, 51-52
 Steam power, 47 n., 62, 84 n., 90-91, 123
 Stoves, oil, 76, 77, 79, 107
 Strikes, 99-101, 117, 118
 Tanneries, 14, 23, 27-29, 27 n., 29-30 n., 128
 Tar, 14
 Transportation facilities, 50-54, 56-57, 91, 123
 Trumbull, J. R., 12-13, 14
 Turnpikes, 26, 51, 52
 Turpentine, 14
 Value of products, 9, 40, 43, 44, 45, 49, 50, 62, 64 n., 75, 76, 85, 87, 88, 92, 92 n., 110, 125, 127, 128, 129, 130
 Vernon Brothers and Company (paper mill), 47 n.
 Wages, 27, 30 n., 39-42, 44, 47, 67, 69, 94-95, 94-95 n., 113, 118, 119-120, 129, 131
 Water power, 12-13, 17-18, 22, 27, 28, 35-36, 49, 55, 56-57, 90, 90 n., 91, 123
 Weeden, William B., 25
 Welfare polices of Mill River companies, 101-105, 115-116, 124
 Wells and Littlefield machine shop, 76, 78, 79
 Whitmarsh, Samuel, 9-10, 59-61, 62-63, 63 n., 67-68, 75, 125
 Williams Manufacturing Company (baskets), 80, 111 n.
 Williamsburg and Windsor Turnpike Corporation, 52, 56
 Williston-Hayden button factory, 9, 45, 45-46 n., 74, 87, 90
 E. E. Wood Company (cutlery), 47 n., 107
 Wood products, 10, 23, 48-49, 81, 83, 93, 111 n., 114, 121, 128, 130, 131
 Woolen industry, 9, 15-21, 24, 31-42, 50, 83 n., 86-87, 90, 123, 128
 Wool production, Massachusetts, 37-38, 38 n.





VOLUME VII (1921-22)

- Nos. 1-3. MAJOR HOWELL TATUM'S JOURNAL WHILE ACTING TOPOGRAPHICAL
ENGINEER (1814) TO GENERAL JACKSON....*Edited by John Spencer Bassett*
No. 4. RECOLLECTIONS OF JAMES RUSSELL TRUMBULL, HISTORIAN OF
NORTHAMPTON, MASSACHUSETTS.....*Anna Elizabeth Miller*

VOLUME VIII (1922-23)

- No. 1. THE SHIP SUBSIDY QUESTION IN UNITED STATES
POLITICS.....*Margaret M. McKee*
No. 2. THE EXCHEQUER IN ELIZABETH'S REIGN.....*Frederick C. Dietz*
Nos. 3-4. LETTERS OF FRANCIS PARKMAN TO PIERRE
MARGRY.....*Edited by John Spencer Bassett*

VOLUME IX (1923-24)

- Nos. 1-2. GERMAN SCHEMES OF COLONIZATION BEFORE 1860.....*Marcus L. Hansen*
Nos. 3-4. THE HISTORICAL BACKGROUND OF THE AMERICAN POLICY
OF ISOLATION.....*J. Fred Rippey and Angie Debo*

VOLUME X (1924-25)

- No. 1. DIPLOMATIC RELATIONS BETWEEN THE UNITED STATES AND
MEXICO UNDER PORFIRIO DIAZ, 1876-1910.....*Pauline Safford Relyea*
Nos. 2-4. THE SUPREME COURT ON THE INCIDENCE AND EFFECTS
OF TAXATION.....*Margaret Spahr*

VOLUME XI (1925-26)

- No. 1. THE JOURNAL OF WILLIAM H. CRAWFORD.....*Daniel Chauncey Knowlton*
No. 2. THE BALLINGER-PINCHOT CONTROVERSY.....*Rose Mildred Stahl*
No. 3. AUSTRIA AND THE UNITED STATES, 1848-1852.....*Merle Eugene Curti*
No. 4. "ANTI-SENATICA", BY JEREMY BENTHAM..*Edited by Charles Warren Everett*

VOLUME XII (1926-27)

- Nos. 1-4. MISCELLANEOUS RECORDS OF THE NORMAN
EXCHEQUER, 1199-1204.....*Sidney Raymond Packard*

VOLUME XIII (1927-28)

- Nos. 1-3. CAPTAIN HOBSON AND THE NEW ZEALAND COMPANY: A STUDY IN
COLONIAL ADMINISTRATION.....*J. C. Beaglehole*
No. 4. THE RECEIPTS AND ISSUES OF THE EXCHEQUER DURING THE
REIGNS OF JAMES I AND CHARLES I.....*Frederick C. Dietz*

VOLUME XIV (1928-29)

- Nos. 1-4. BENEFIT OF CLERGY IN ENGLAND IN THE LATER
MIDDLE AGES.....*Leona C. Gabel*

VOLUME XV (1929-30)

- Nos. 1-2. STUDIES IN THE HISTORY OF SPAIN IN THE SECOND HALF
OF THE EIGHTEENTH CENTURY.....*Vera L. Brown*
Nos. 3-4. THE HISTORY OF TOBACCO PRODUCTION IN THE CONNECTICUT
VALLEY.....*Elizabeth Ramsay*

VOLUME XVI (1930-1931)

- Nos. 1-2. HADLEY: A STUDY OF THE POLITICAL DEVELOPMENT OF A TYPICAL
NEW ENGLAND TOWN FROM THE OFFICIAL RECORDS
(1659-1930).....*Ellen Elizabeth Callahan*
Nos. 3-4. BRYAN AND WORLD PEACE.....*Merle Eugene Curti*

VOLUME XVII (1931-1932)

- Nos. 1-4. NATIVE AMERICAN ANARCHISM: A STUDY OF LEFT-WING
AMERICAN INDIVIDUALISM.....*Eunice Minette Schuster*

VOLUME XVIII (1932-1933)

- Nos. 1-4. A HISTORY OF FRENCH SUBSIDIES TO
COMMERCIAL AVIATION.....*Marian Donahue Tolles*

VOLUME XIX (1933-1934)

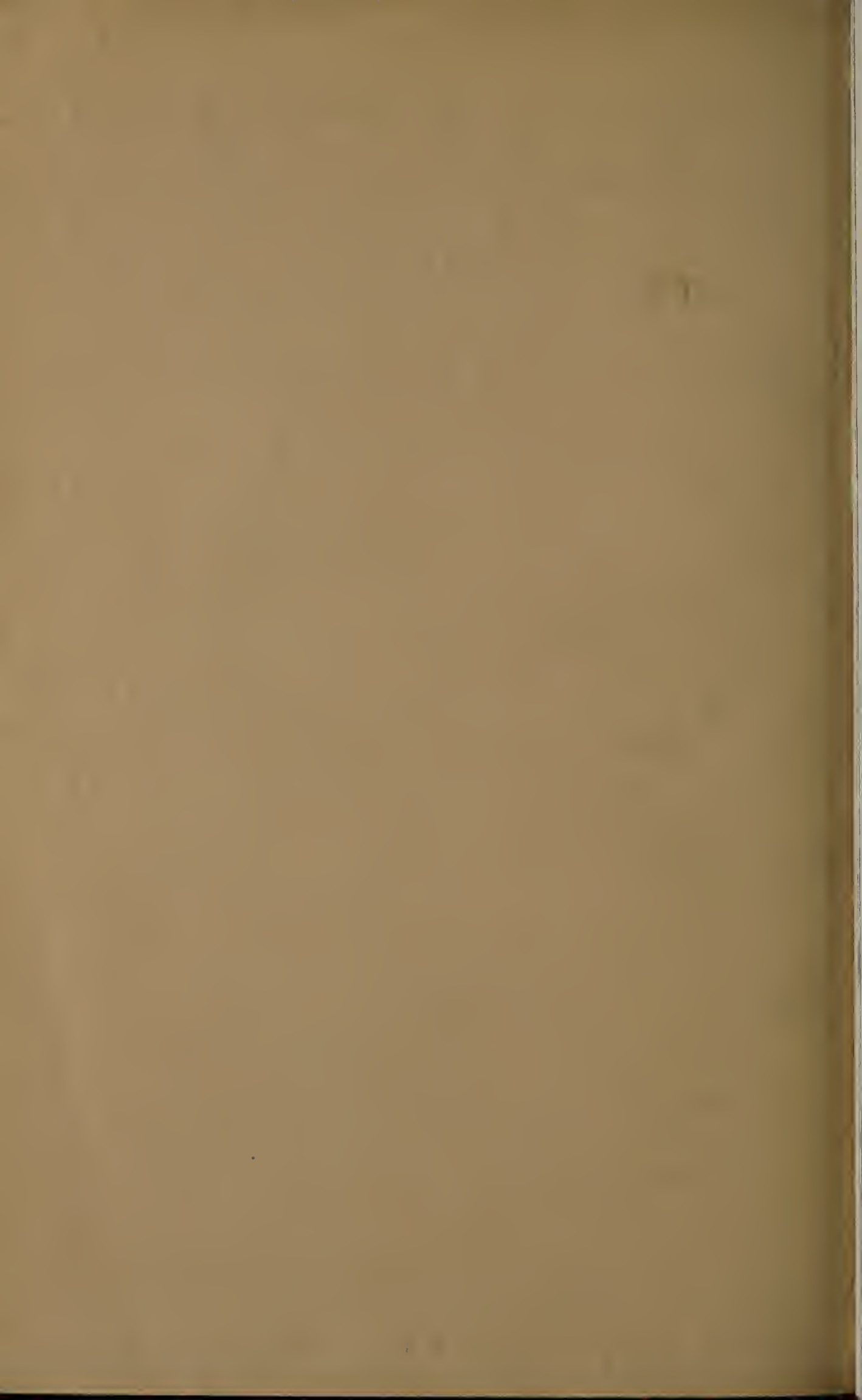
- Nos. 1-2. STUDIES IN THE ECONOMIC HISTORY OF THE
OHIO VALLEY.....*Louis C. Hunter*
Nos. 3-4. SHUTDOWNS IN THE CONNECTICUT VALLEY.....*Katherine Du Pre Lumpkin*

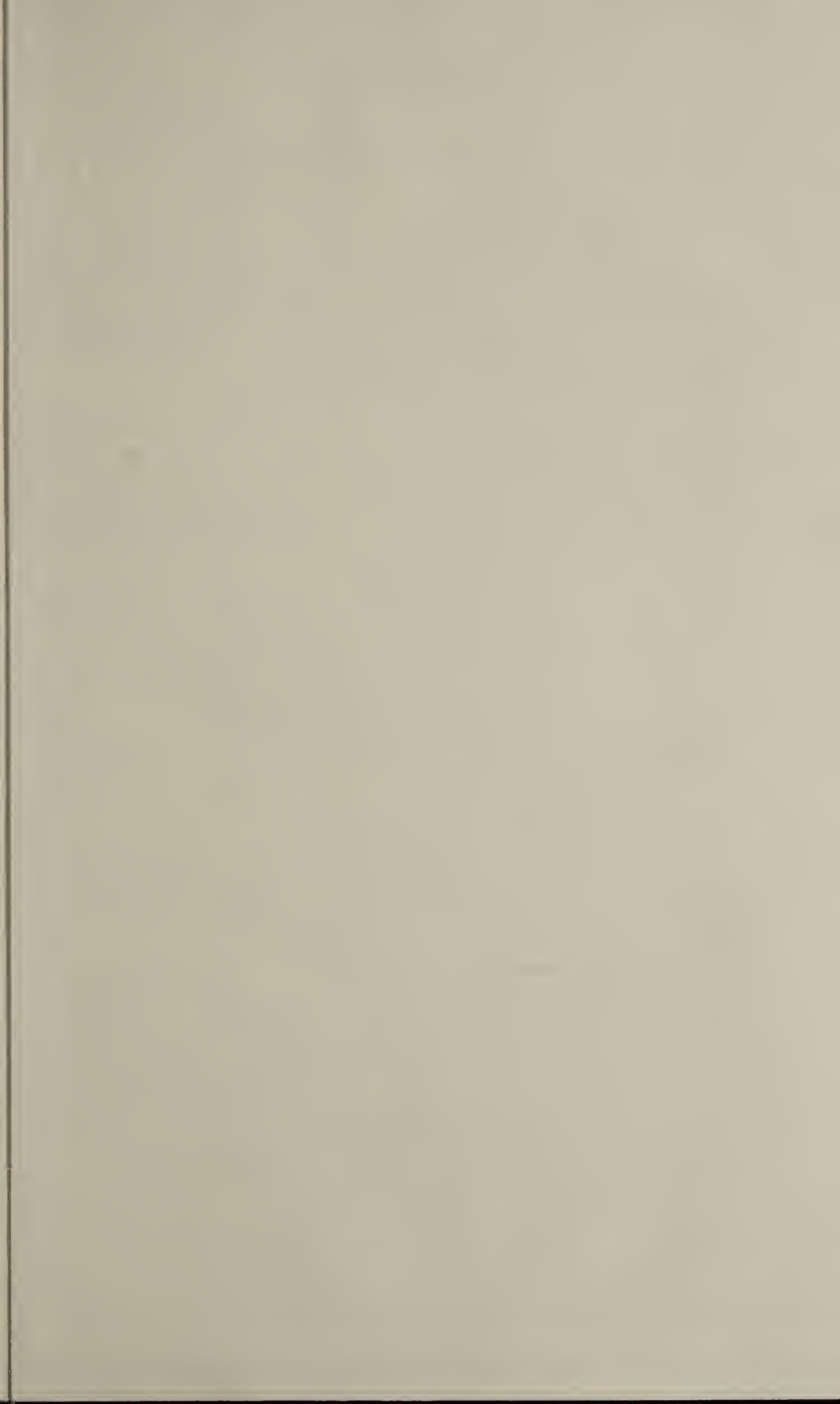
VOLUME XX (1934-1935)

- Nos. 1-4. ECONOMIC HISTORY OF A FACTORY TOWN.....*Vera Shlakman*

VOLUME XXI (1935-1936)

- Nos. 1-4. A CHRONICLE OF INDUSTRY ON THE MILL RIVER.....*Agnes Hannay*
-





HECKMAN

B I N D E R Y, I N C.

Bound-To-Pleaze®

JUNE 03

N. MANCHESTER, INDIANA 46962

